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Materials Handling: Matthew W. Potts
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Packing and Packaging: Allyn C. Beardsell
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Advertising Staff
Eastern States
H. S. Webster, Jr.
100 E. 42nd St., New York 17, N. Y.
Telephone: MURRAY HILL 5-8600

Central States
Hiram L. Roberts
859 Leader Bldg., Cleveland 14, Ohio
Telephone: SUPERIOR 1-1080

Middle West States
A. H. Ringwalt
360 N. Michigan Ave., Chicago 1, Ill.
Telephone: FRANKLIN 2-0829

Western States
McDonald-Thompson
625 Market St., San Francisco 5, Cal.
Telephone: YUKON 6-0647

3727 W. 6th St., Los Angeles 5, Cal.
Telephone: DUNKIRK 7-5391

Terminal Sales Bldg., Seattle 1, Wash.
Telephone: MAINE 3860

115 S. W. 4th Ave., Portland 4, Ore.
Telephone: ATLANTIC 7401

222 Colorado National Bank Bldg., Denver 2, Colo.
Telephone: MAIN 2773

★ THE COVER

Scrap handling can be both a serious problem and a heavy expense, but Westinghouse's East Pittsburgh Works has effected an annual saving of \$9,000 by using this fork truck and self unloading hopper (see lead article, Page 19). Use of 15 fork trucks in a modern materials handling set-up has saved the East Pittsburgh Works some \$57,000 in one year.



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MAY, 1952

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VOL. 51, No. 5

MAY, 1952

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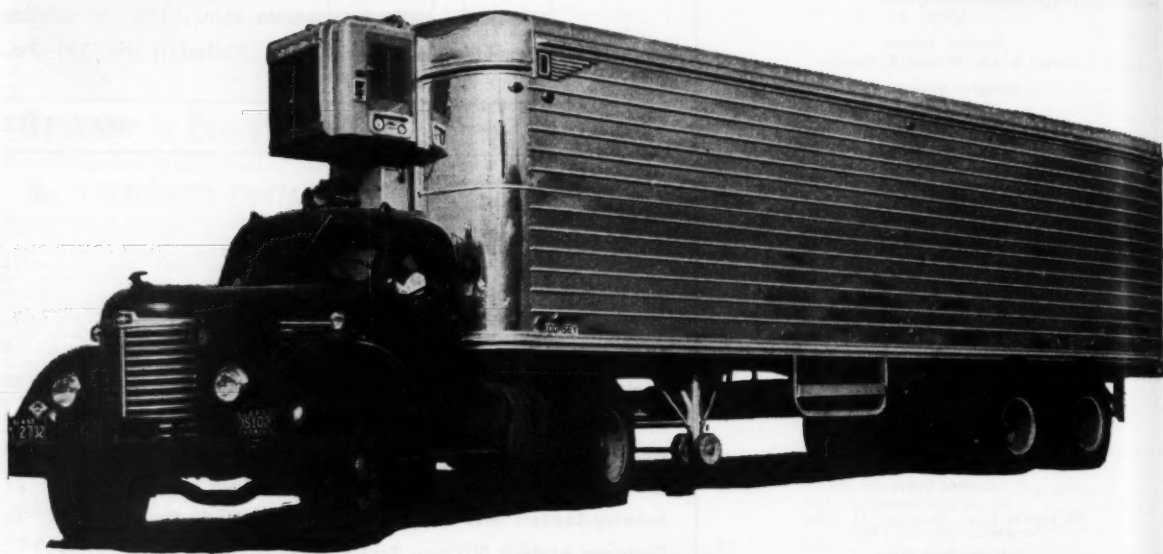
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Toughest of extra-light trailers gives Unfailing Protection



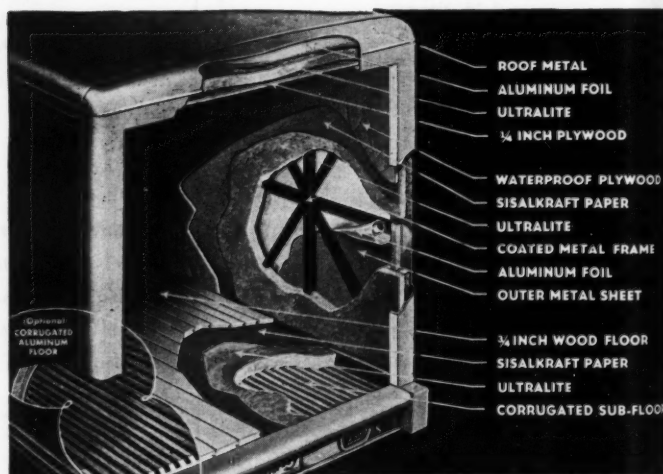
Light weight is accomplished without sacrificing strength in the smart-looking new 1952 Dorsey Fleet Chief.

Dorsey Refrigerator Vans like the one pictured are available in 30-foot length with a total weight of only 11,300 pounds, including corrugated aluminum floor, and 4½ inch insulation sealed in aluminum foil in sides, top and floor.

Exclusive construction features have earned for Dorsey a reputation for ruggedness. Compare weight, compare cost, compare maintenance—you'll see for yourself why Dorseys are your best buy.

Dorsey Tandem CRADLES YOUR CARGO!

Tandem suspension requires no lubrication because new oil-impregnated bushings replace conventional bearings. All radius rods pull, to hold alignment, and Dorsey 3-point suspension minimizes wheel bounce and equalizes load strain.



Cutaway view shows how 4½-inch insulation in aluminum foil is installed over the tough Dorsey frame system. All doors have refrigerated type step-sealed construction.

DURABLE DEPENDABLE DORSEY TRAILERS
ELBA, ALABAMA

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On the Line **DA**

EDITORIAL COMMENT

... And "Whatever Goes Up" ...

MOST kids are fed the facts of life in capsule form. We got our share of them, of course. There was the one about "Early to Bed," which was supposed to make us healthy, wealthy and wise. Then there was, "An Ounce of Prevention," and "A Stitch in Time," and so on.

Of course, we had our own versions of these maxims. Our "Stitch" ended with "And you get your big brother's castoffs."

We had others that remained with us over the years. For moral support against some bully, we would say, shout or taunt (sometimes toe to toe and nose to nose), "The bigger they are, the harder they fall." (Often, nursing our bruises, we would doubt the wisdom of these wise sayings, but we never discarded them completely.)

Today, as we look about the unsettled conditions all around us, we reach into the past for some maxims to console ourselves and to give us courage to face the future.

The most encouraging one we can think of—and we grasp it like a drowning man grasps a straw—is, "Whatever goes up, must come down." We admit that we had to go to the bottom of the barrel for that one.

It's the sixth round of wage increases and the new heights of inflation that bother us. We have no quarrel with any individual's earnings. We believe in private enterprise and we'll cheer any individual or organization that is able to climb to the top of his vocation or sphere of operations. Our concern is with the moral values.

A few weeks ago the Dean of Purdue University's School of Engineering told a large assemblage of industrial engineers and business men, attending a banquet on the campus, that every young man of the graduating class of engineering already was hired. That's good, of course. But every one of these lads would receive at least \$5,000 a year as a starting wage. That's not good, and the Dean, himself, admitted that ruefully.

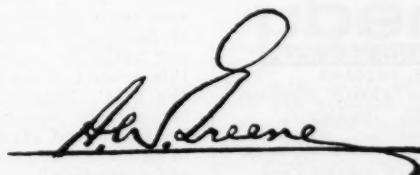
Just a few years back, \$5,000 a year was a handsome salary. It took years of successful experience to reach that point. Actually, is any young fellow, fresh out of school, worth that much to any business? And this is only the beginning. What will happen to their sense of values?

We don't want to point our finger just at engineering graduates. Have you hired any clerical help lately?

Mr. Murray's steel workers, by force or political pressure, will receive close to \$2 an hour. Is semi-skilled work worth that much?

Steel's profits during 1951 were less than the previous years. Because Steel's statements still show some reserves, the union boys want to grab them. They should be reminded that equipment wears out, that it costs more to replace now than ever before. Only with big reserves and profits can American Industry, not just Steel, go forward—to build new plants, to hire more men.

And so, mournfully and cornfully we reflect that, "Whatever goes up must come down"—and "The higher up it goes, the harder will be the fall."





No matter how fine your finished products may be, they are always subject to serious damage in transit and storage if not properly packaged for full protection against abrasion, dirt, moisture, dust, water . . . under extremes of heat or cold. Such damage often makes those quality products worthless to the buyer, and you are blamed.

No matter what your products may be . . . tiny or tremendous, hard goods or soft . . . Kennedy's expert packaging engineers are always ready to develop, and its extensive plant is fully equipped to produce the necessary bags and covers of paper, foil, plastic film or combinations of each that will assure this vital protection. Such packaging means product delivery in factory-fresh condition, regardless of time or weather.

Domestic and Military

Armed with all-out experience in two world wars, Kennedy is fully prepared to meet in stride both domestic and military packaging demands of today . . . and tomorrow. Write or wire for assistance of our packaging engineers. No obligation.

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DETROIT CHICAGO LOS ANGELES
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LETTERS

TO THE EDITOR

What'll You Have?

To the Editor:

I was particularly interested in two of the articles appearing in your April issue; namely, "Warehouse Efficiency Checklist," by Lloyd Moore, and "Basic Data for Delivery Cost Control," by W. L. VandeWater.

This is the type of information that is vital to our industry. We can use a lot more.

Clyde E. Phelps

Executive Secretary,
Associated Warehouses Inc.,
Chicago, Ill.

Many thanks to Mr. Phelps for taking the time and trouble to write us about the kind of articles he likes and believes valuable to his industry. We'll do our best to supply more.

We would like to hear from our other readers—as to what they like—and dislike—so that our articles will be of maximum interest to all. We have no way of knowing unless you tell us.—Ed.

Loss and Damage Payments

To the Editor:

An article by Leo T. Parker (DA Legal Consultant) in the January issue of DISTRIBUTION AGE was of particular interest to me in as much as we recently lost a law suit for an amount far in excess of the release valuation.

Our tariff is, of course, filed with the Interstate Commerce Commission, and the shipment in question was released at 30 cents per lb. per item. This release valuation was agreed to and signed by the shipper.

The jury returned a verdict awarding \$4,000 to the shipper, although the release valuation for the total shipment would not have amounted to one-third of that amount, and in addition, this shipper was only claiming damage for approximately one-half of the merchandise shipped.

We quote herewith from the story in the January issue: "The higher courts hold that a common carrier which has a tariff schedule which specifies a stipulated liability for loss or damage to shipped merchandise is not liable for payment in excess of this amount if the tariff is filed with the I.C.C. This is true even though the shipper was not notified of the limitation and given the opportunity to pay a higher rate for full coverage and protection."

We have appealed the case referred to, and accordingly, we would appreciate your furnishing us a specific case for reference.

L. E. Wilson

Treasurer,
Howard Van Lines, Inc.
Dallas, Texas.

In reply to your recent letter, these are the cases you requested: Benz, 9 S.W. (2d) 922; Clubb, 198 Pac. (2d) 142; and more particularly, see Royalty, 62 N.E. (2d) 200; and Feinberg, 163 Fed (2d) 998; 175 S.W. (2d) 701; Smith 51 S.E. (2d) 159. These various higher court cases discuss all phases of the law on loss and damage in which you are interested, and particularly discuss phases with respect to common carriers and clauses of non-liability in connection with Interstate Commerce Commission regulations.—Leo T. Parker, Legal Consultant, DISTRIBUTION AGE.

Reader Questions Editorial

To the Editor:

Regarding your On the Line editorial, "Same Patter, Same Pattern," I read same with great interest. But, regarding the mechanizing part of it, I wonder.

Our economy is governed by steady employment of 60,000,000 people. If we lay off, say, 20,000,000 people, could Steel or any business succeed? Certainly not.

We need other solutions. Your version, or answer, is not one of them.

John F. Lang

Oaklyn, N. J.

We are not advocating laying-off of 20,000 not 20 people, let alone 20,000,000. It is the fine-feathered (rather than pied) pipers of labor who are leading the obedient, though not altogether willing, children of labor into ultimate layoffs.

The growth of the materials handling industry, with its labor-saving equipment, was stunted by Big Business' liberal use of manpower as it tried to dig itself out of the depression. Now, Labor, aided and abetted by the Administration and the politically-minded Bureaucrats, is biting the hand that fed it.

As U. S. Steel's Robert Tyson implied, during the New York negotiations, Labor now is receiving and demanding more in wages than it is delivering in units of productive work—compared with its output of 10 or 15 years ago. How long can such a situation exist?—Ed.

Chuting the NEWS

Cartage Group Protests Ban on LCL Shipments

A formal protest to a railroad proposal which would, in effect, eliminate rail LCL shipments and local cartage operations in behalf of the railroads, has been adopted by the Local Cartage National Conference.

The railroad proposal to adopt a rail Plus Charge Tariff would affect local cartage operations in an "Official Territory" designated as the area east of the Mississippi, north of the Potomac and Ohio rivers, but excepting the New England states.

LCNC is seeking a joint conference with shipper organizations to consider these proposals:

1. Improvement of through rail service to reduce handling time and speed pick-up and delivery.
2. A sliding scale of rail rates, based on size, shape, weight and quantity of items designated for through rates;
3. Elimination of rail plus charges;
4. Stronger solicitation and advertisement of rail services and rates by railroad representatives and P&D contractors.

Restrictions on aluminum closures have been removed by NPA.

Adjustable Locomotive

A new type of Diesel locomotive, built to Army Transportation Corps specifications by GM, can run on tracks of varying gauge, from U. S. standard up to the widest in use. Simple mechanical adjustment of wheels on the axles permits change from one gauge to another.

Air Consolidation

An agreement for the consolidation of Delta Air Lines and Chicago and Southern Air Lines has been announced by the company presidents. Terms of the agreement must now be submitted to stockholders and the CAB for approval. The continuing company will be known as Delta-C & S Air Lines.

U. S. stocks of burlap, spot and afloat, dropped 22 per cent during the past year.

Metal Allotment Upped

Small manufacturers have been allocated increased rations of steel, copper and aluminum by the N.P.A. for the third quarter. They will be permitted to write their own priority tickets for roughly twice the amount of these metals allocated to them this quarter.

Clyde Phelps Celebrates 15th Year of AWI Service

Clyde Phelps, Executive Secretary of Associated Warehouses, Inc., recently observed his 15th year of service with the national organization.



When Phelps joined AWI in January, 1937, the association was three years old, had a membership of 30 warehouses and had yet to establish its reputation within the industry.

Mechanization and palletization were only in the primary stages. AWI, today, has 75 of the nation's leading warehouses—including 20 of that original group—and has gained a reputation for service and integrity. The AWI chain extends from Boston to Los Angeles, and from Miami to Seattle.

Phelps was honored for his years of warehouse service during the recent 61st annual meeting of the American Warehousemen's Association, at New Orleans.

FRB has shelved voluntary credit restraint by exempting private financing from screening.

(Please Turn Page)

Coming Events

May 6-23—Fifth Foreign Transportation, sponsored by the National Federation of Foreign Shipping, The American University, Washington, D. C.

May 31-June 4—National Freight Traffic Assn., spring meeting, Greenbrier, White Sulphur Springs, W. Va.

June 2-13—Canadian International Trade Fair, Toronto, Canada.

June 4-14—Third Mechanical Handling Exhibition and Convention, Olympia, Exhibition Hall, London, England.

June 16-20—Industrial Finishing Exposition, Conrad Hilton Hotel, Chicago, Ill.

June 23-26—Canadian Warehousemen's Assn., annual convention, Hotel Vancouver, Vancouver, B. C.

June 29-July 2—Material Handling Institute, mid-year industry meeting, Grand Hotel, Mackinac Island, Mich. All materials handling industries are invited to attend.

Aug. 12-14—Fourth Western Packaging and

Materials Handling Exposition, Shrine Convention Hall, Los Angeles, Calif.

Sept. 18—Material Handling Institute, meeting, Cleveland Hotel, Cleveland, Ohio.

Oct. 14-16—Society of Industrial Packaging and Materials Handling Engineers, seventh annual exposition, Chicago Coliseum, Chicago, Ill.

Dec. 18—Material Handling Institute, meeting, Hotel Statler, New York, N. Y.

Chuting the NEWS

(Continued from Preceding Page)

Baker-Raulang Opens N. Y. Office To Serve Eastern Seaboard Area

An equipment demonstration and informal cocktail hour featured the official opening of an eastern sales and service office by the Baker-Raulang Co. in New York early this month.

Baker's new eastern headquarters, at 137 Varick st., is expected to provide closer liaison between industrial truck users in the East, many of whom are the nation's largest users of this equipment, and the Baker sales and engineering staff, according to J. W. Moran, company president.

Charles N. Sumwalt has been named regional vice-president in

charge of sales for the eastern United States, and will supervise all sales and service on the Eastern Seaboard for the Baker line.

Sumwalt will also have the responsibility of coordinating all activities with respect to national accounts. Baker tentatively plans to handle export activities from the New York office at some later date, since the great bulk of export sales originate in the New York area.

William Bauer, chairman of Baker's Board of Directors, will also maintain offices at the Varick street address. The Baker main office is located in Cleveland, Ohio.

Unloading Improvement

The use of industrial lift trucks and other powered materials handling equipment has been credited by the Department of Agriculture with reducing sharply the number of man hours required in unloading bales of cotton from railroad cars and motor trucks and weighing, sampling and placing them in storage. In motor truck unloading, it has been shown that two lift truck operators can accomplish as much as six men in less than half as much time required by the hand

truck method. In unloading railroad cars it was found that one lift truck operator can keep pace with six men using hand trucks.

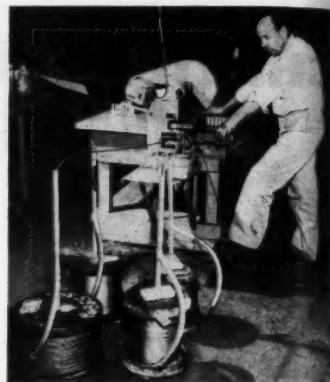
Exposition Outdoors

The program of the fourth Western Packaging and Materials Handling Exposition has been expanded to include an outdoor as well as indoor exhibition. This extension will make possible the operation of large and heavy equipment impractical for indoor demonstration. The exposition is scheduled for Aug. 12-14.



Fork trucks are doing double duty out in the Illinois plant of the Jewel Tea Co. They are being used to haul three-car trailer trains, and have increased the efficiency of operations involved in moving goods from storage to assembly areas by

some 200 per cent. Recognizing the advantages of such trailer trains for long distance hauling, plant engineers found that fork trucks could do the hauling, making other tractor equipment unnecessary. As many as seven pallet loads can be carried.



A cable feeding assembly made of two pieces of welded tube has eliminated the need for the large wooden racks formerly used to hold spools of cable at Texas Engineering and Manufacturing Co., Dallas, Texas. It was developed by K. W. Goggans, an employee in the Tubing and Cables Department.

"Prepare and Compare" Knudson Tells Traffic Men

Planned, early preparation for "come what may" is James K. Knudson's advice to the transportation industry. The Defense Transportation Administrator expressed this sentiment last month in an address before the Columbia (S.C.) Traffic Club.

Claiming that preparation in transportation calls for short and long range programs, Knudson warned, "It is altogether possible that the explosive situation of the world today may continue, not with just a year or so more of mobilization, but many more."

The Administrator cited his own truism: "In times of peace or war, our transportation is best handled by private industry," recalling government control during World War I and the resulting muddle, as compared to the excellent performance of an undermanned, under-equipped, but self controlled, transportation industry during World War II.

"There is a need," Knudson said, "for a central government agency, functioning to the utmost and ultimate degree through voluntary cooperation of carriers and shippers, administered with a minimum of interference with private management." "There exists," he said, "an urgent need for vigorous and sustained preparation."

MEN

IN THE NEWS

Materials Handling

A. F. Koch has been named works manager of Borg-Warner's new Wooster Division, Wooster, Ohio.

Robert W. Scott is new chief of the materials handling equipment branch, General Industrial Equipment Division, National Production Authority. Carl Duckwitz was appointed chief of the industrial truck section and C. G. Hawley chief of the conveyor section.

J. Alex Gordon, E. S. Goodloe and P. E. Whiting have been honored for long service by the Automatic Transportation Co., Chicago.

Robert M. Whitney has been appointed sales manager, Automatic, of the Automatic Transportation Co., Chicago, Ill.



Vernon L. Johnson has been named regional sales manager in the Northeast by Clark Equipment Co., Battle Creek, Mich. Joe H. Peritz has joined the Clark sales staff.



Charles S. Schroeder has been named head of the research and development division at Yale & Towne Mfg. Co.

Harry M. Frecker is in charge of commodity sales for the mechanical goods division, United States Rubber Co., New York.

Lee S. Miller has been named vice president in charge of sales by the National Pallet Corp., Pittsburgh, Pa. Henry N. Faxon, Jr., is new assistant sales manager and Mathew Johnson has been named purchasing agent.

Packing and Packaging

Dr. Herman A. Bruson has been appointed manager of the organic research department of Olin Industries, Inc., New Haven, Conn.

R. L. Morse and J. M. Godley, Jr., general line salesmen for the Wood Conversion Co., have moved to new territories. Morse is in Springfield, Mo., and Godley in Wichita, Kan. Louis L. Saur has joined the general

(Please Turn to Page 87)



Floor view of the 1952 Foundry Show in Atlantic City's Convention Hall

Foundry Show Reflects Emphasis On Materials Handling Equipment

The International Foundry Congress and 56th Annual Meeting of The American Foundrymen's Society, held in Atlantic City, N. J., May 1-7, reflected the increased emphasis on mechanized materials handling equipment for the foundry industry.

Mechanization of every foundry operation from sand mixing to core drying was performed on the floor of Atlantic City's Convention Hall. Several of the larger materials handling manufacturers—

particularly those in the conveyor, crane, hoist and heavy industrial truck lines of the materials handling industry—held booths.

The 1952 meeting of the AFS attracted 16,000 foundrymen, guests and visitors. Heading the roster of new officers and directors named at the business meeting were President-elect I. R. Wagner, Electric Steel Castings Co., Indianapolis, Ind., and Vice-President-Elect Collins L. Carter, Albion Malleable Iron Co., Albion, Mich.

New Transportation Dept.

The Manufacturing Division of United States Steel Co. has announced the establishment of a Transportation Department under the direction of J. W. Hoover, former general traffic manager. The new department is to improve transportation service to all plants of the Manufacturing Division, and will be responsible for coordinating transportation services to meet all plant requirements.

Court Studies Seizure

The Supreme Court on May 12 began hearing arguments on government seizure of the steel mills. A finding is expected by June 3, when the court will recess.

Fuel Order Issued

The government has ordered gasoline dealers in 32 states and D.C., to set aside some of their supplies for essential transportation in case the oil strike cuts deeper into available fuel.

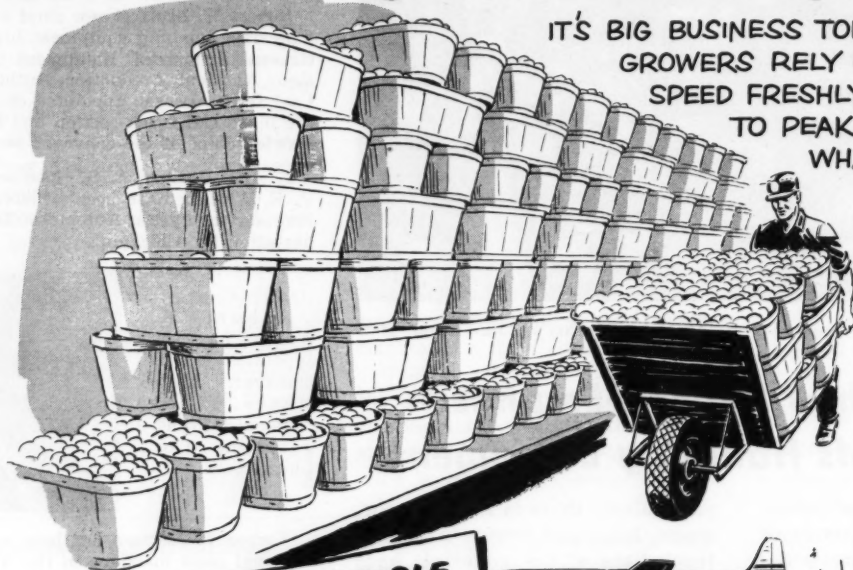
Industry Hits Controls

Industry leaders reported fast growing sentiment for dismantling of wage-price controls this month at a meeting of the Commerce Department's 100-member Business Advisory Council. Earlier, top mobilization officials had urged Congress "not to be hasty" in considering such action.

(Please Turn to Page 89)

ALONG THE WAY... OF **TWA**

Mushrooms by the Million fly **TWA**!



IT'S BIG BUSINESS TODAY, AND MANY GROWERS RELY ON **TWA** TO SPEED FRESHLY PICKED CROPS TO PEAK MARKETS.

WHATEVER YOUR PRODUCT — PERISHABLE OR NOT — SHIP IT VIA FAST, DEPENDABLE **TWA** AIR CARGO. RATES ARE LOW. PHONE TODAY.

TYPICAL TIMETABLE

TWA all-cargo "Sky Merchant" service coast to coast:

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12:05	Lv. New York	Ar.	6:05
1:50	" Philadelphia	Lv.	4:20
	" Pittsburgh	"	12:40
6:20	" Chicago	"	9:35
10:35	" Kansas City	"	2:05
	" Phoenix	"	10:15
3:35	Ar. Los Angeles		



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"Big Wheel" DUE IN PHOENIX FROM MIDWEST VIA **TWA** HAD AIRPORT AGENTS HUSTLING. OUT CAME RED CARPET. JOKE ON THEM. "WHEEL" WAS 200 LBS. OF CAST IRON. HOWEVER, EVERY SHIPMENT GETS SPECIAL ATTENTION ALONG THE WAY OF **TWA**.



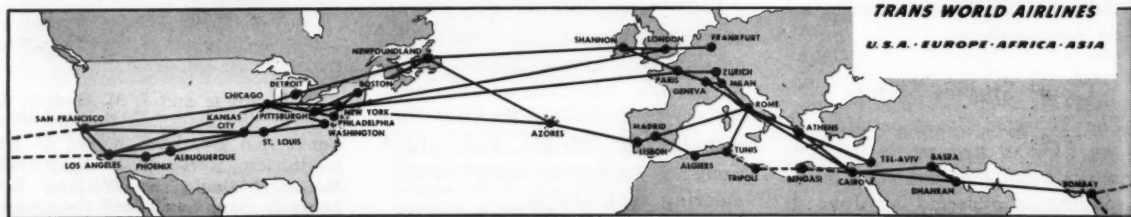
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Washington

DA

By Karl Rannells, *Washington News Bureau*

Production Summary

Basic raw materials supplies are easing on all fronts. Barring such things as prolonged strikes, it seemed likely in April that beginning with the last quarter 1952 more steel, aluminum and even copper would be available for materials handling, transportation, and packaging equipment which have had to stand aside during earlier phases of defense mobilization.

Industry and business themselves apparently have confidence in the future regardless of Korean negotiations. On the basis of figures assembled by the Office of Business Economics, industry is going ahead with plans to put about \$24 billion into new plants and equipment during 1952. More than half of the amount will go into factory expansion. This will be split about half-and-half between hard and soft goods industries.

A vast oil expansion program is on with about \$2.5 billion to be spent for new pipelines, refineries and storage facilities. About \$2 billion will be put into new facilities by the transportation industries, both rail and highway.

Defense Output

Outlook as to defense production has cleared as a result of decision to stretch out mobilization from a three-year to a four-year period. Forecasts now are that deliveries of military and defense goods will climb to \$10 billion a quarter by the end of this year. They are expected to stay at about that level through 1953 and 1954. After that there will be substantial requirements for replacement, providing a snug base for distribution facilities.

Transport Expansion

Net result of the easing of raw materials supplies is to permit a moderate expansion of transportation facilities during 1952. About 90,000 new freight cars are now in sight for this year, a net gain of 30,000 after allowing for scrappage. At least one million new trucks are expected to be turned out. A total of 52 tankers are on order at American shipyards and the first of 35 dry cargo ships now being built was recently launched.

Container Supplies

Federal officials see the supply of containers as being generally good from here on. All demands are expected to be met. The opinion is based partly on the easing of materials supplies but also on the falling off of demand in numerous lines—such as for slack and tight cooperage. Expansion programs are under way for cardboard and paperboard while increased steel production is seen as taking care of steel drums and other metal containers.

Consumer Durables

Increased production of consumer goods is expected over coming months. Severe shortages predicted freely in late 1951 never materialized. Demand was weaker than expected for one thing. For another, insistence by control officials that defense agencies take only the quantity of raw materials that they could use resulted in easing of pressure on civilian types of production. Prospects now are that not only will civilian allotments be increased but that decontrol will begin late this year.

Stockpile Progress

As of March 1, the value of materials in the government stockpile was reported at \$3.6 billion. Another \$2.2 billion worth was on order. This figure is already more than the goal set five years ago. But the target is now \$9.4 billion. This means that over the next few years something like \$6 billion worth of about 50 different types of raw materials must still be produced, transported, and stored in government controlled warehouses.

Steel Strapping

There should be nothing more than spot shortages, if that, for steel strapping for the remainder of the year. All restrictions on uses were lifted in late March and the permitted inventory ceilings increased from the previous 45 days' supply to 60. Control agencies will allow 40,000 more tons of steel than planned which should increase production by at least 10 per cent.

Cotton Duck Production

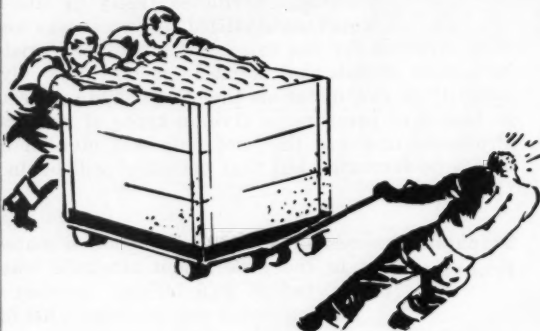
From the government's viewpoint, there is no danger now of inadequate production of cotton duck of the types needed for civilian items ranging from packsacks to truck tarpaulins and belting. Mills are now turning it out at the rate of 360,000,000 yards a year—up 45 per cent from 1950. Besides, military demands have leveled off. Except for a few types, including belting, the military is not buying less.

Petroleum Facilities

Government agencies are urging the petroleum industry to get on with construction of additional distribution facilities, holding out federal aid as incentive. Tax incentives and other aid will be extended over the next 18 months in an effort to increase refining capacity by an extra 750,000 bbls a day, pipeline facilities by 20,000 miles, and storage capacity by 153,000,000 bbls—not counting retail storage. Aid will be given for stepping up the well-drilling rate from the 40,000 wells annually of a year ago to 55,000.

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Waste Hours...or Work Hours in Your Plant?



Why Overwork Three Men This Way . . .

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MULTIPLY 15 fork trucks by a modern materials handling system and you have the picture of a successful operation at the East Pittsburgh Works of the Westinghouse Electric Corp.

Here are the principal dollar savings that the plant has made in one year with a mechanized plan:

- (1) \$12,000 on the handling of finished products in its molded materials plant;
- (2) \$17,000 on the handling bill in the works' lumber yard, as well as a 100 per cent increase in use of storage space in the yard;
- (3) \$12,000 in the warehousing of raw materials used in the molded materials section;
- (4) \$9,000 in a single scrap-handling operation;
- (5) \$7,500 by palletizing castings in a parts storage yard.

Those five major operations have produced an annual saving of more than \$57,000.

The plant also has cut expenses and added efficiency by increasing storage space 100 per cent in the molded materials warehouse, and by doubling storage space in an outside storage yard for drums.

... 98 Football Fields

The East Pittsburgh shops cover an area large enough to accommodate 98 football fields. The works turn out huge generators and electric motors—some of the finished products are so large that they must be shipped in sections. Switchgear equipment and other parts also are made at East Pittsburgh.

A network of trailer trains and 10½ miles of diesel-electric railroad facilities are used for the longer hauls of materials through the works. Bridge cranes in the production bays handle giant electrical equipment. Fork trucks are used on short hauls in warehouses and storage yards; they alone are responsible for the vast savings listed above.

One storage job—the stacking



Fork truck handling in the lumber yard cut costs by \$1700

15 Fork Trucks Save \$57,000 Yearly

**Westinghouse's East Pittsburgh Works also boosts
use of storage space and efficiency of its workmen**

of drums as they come off rail cars, in an outside area—was speeded up and made much more economical when plant handling men designed a unique pallet to move the drums by fork truck. At the same time, the works showed

a 100 per cent increase in storage space for the drums.

Formerly, the drums were unloaded from rail cars by a crew of laborers. The old handling system involved dropping the drums from the rail cars and rolling them

15 Fork Trucks . . .

(Continued from Preceding Page)

to the storage area. Wooden planks were used as tracks to make the job easier. The hand labor crews stacked the drums two high—and when drums were needed in production, the men wrestled them off the piles and rolled and lifted them to the trailer trains.

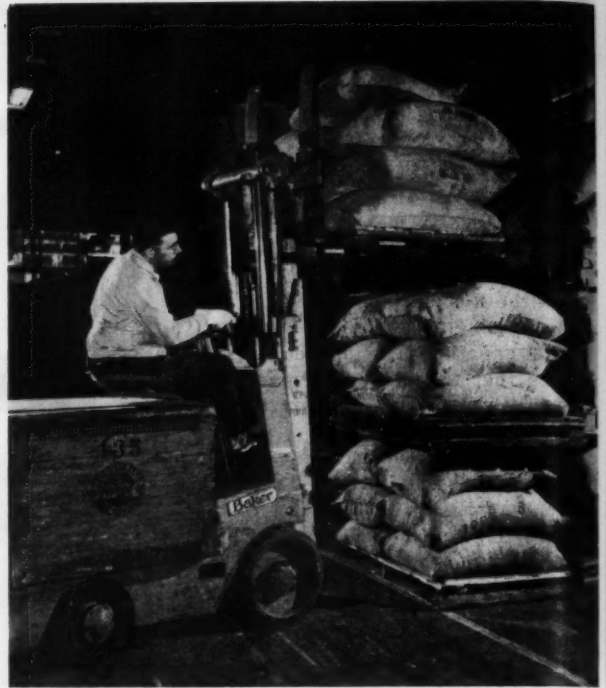
Stringer Pallet

Then, Westinghouse developed a special pallet, designed with a stringer down the middle, with one stringer on each long side. This pallet enabled the carrying and stacking of drums with fork trucks. Now, the drums are unloaded from a rail car, rolled on the pallets and taken by fork trucks to the storage area. They are stacked four high.

Storage space was increased 100 per cent in the molded materials warehouse with the introduction of fork trucks. Previously, bagged material was brought to the warehouse on trailer trains and platform trucks. Two laborers worked full-time in the warehouse, piling bags for storage. The work was slow and the bags couldn't be piled

very high without danger of toppling and space was wasted.

Now, fork trucks do the work. Everything is palletized. The company provides its nearby suppliers



A single fork truck handles bags for the entire warehouse. By stacking the bags rafter high, storage space was doubled.

Palletized and handled by fork truck now, these castings were once piled loose in an outside storage area—Resulting yearly saving, \$7500



with the pallets that are used for shipments to the works; supplies from more distant points are put on pallets as they are unloaded. The old two-man crew has been reassigned to more profitable production work. The company figures that its savings on direct labor alone for the first year the trucks were on the job was at least \$12,000.

Finished products in the molded materials section used to be put in small cartons after inspection, and loaded manually on trailer trains. The trailers took the cartons to a shipping area where they were held until enough had accumulated to make up a worthwhile truck shipment.

\$12,000 Labor Saving

By using fork trucks to handle the material, and changing its shipping containers, this section saved approximately \$12,000 on direct labor costs during the first year under the new system.

With the improved system, workers put finished parts in collapsible



A specially developed stringer pallet for drums cut handling costs and effected a 100 percent increase in storage



One fork truck deposits another at the next higher level in molded material section at East Pittsburgh works

steel containers which are hauled away by a walkie-type fork truck to a shipping dock that has been added to the building. The walkie places loaded containers on short sections of roller conveyor which run along the walls at the rear of the dock. When a truck load has accumulated, the walkie is placed on the dock by a heavy-duty fork truck so that it can be used to load the highway truck.

Cut Costs \$17,000

The works' lumber yard saved \$17,000 in direct labor costs by substituting a fork truck for manual handling methods. The truck also has doubled storage facilities.

Lumber arrives at the yard in rail cars. The old handling method involved unloading the cars, stacking the lumber piece by piece, breaking the lumber down one-piece-at-a-time as the lumber was needed, and loading it manually on trailer trains.

Now, as soon as the wood is unloaded and piled, a steel strap is placed around each end of the pile.

From that point, the pile is handled as a unit load by a large capacity fork truck.

Scrap Disposal

Disposal of scrap is a large operation at the East Pittsburgh works (See Cover Picture). About 308 million lb of sheet metal are used there in one year. That necessitates a large amount of scrap that must be carried from the plant to keep work areas orderly.

Before it put fork trucks to work, the company used bridge cranes and trailer trains. Home-made trash cans were placed next to production machinery, and as the cans were filled, they were lifted by cranes to the trailer trains. Platform trucks also served as carriers.

Two helper-laborers and the trailers or trucks took the scrap to an open rail car that had been spotted near the pick-up area. Cans were removed from the carriers by bridge cranes, with one of the laborers serving as hook-up man. The other laborer worked in the

rail car, upsetting and dumping the cans as they were lifted into the car by the crane.

Now, fork trucks and self-unloading hoppers are used to handle scrap. Hoppers have replaced the old, shop-built trash cans. As the hoppers fill up, they are moved by fork truck to the rail car and dumped without any manual handling. The fork truck operators do the entire job without leaving the trucks.

Scrap Saving \$9000

Labor savings for the first year under the new system were \$9,000. The heavy bridge cranes do not have to be used on this non-productive job, creating another savings as they can be better utilized elsewhere in the plant.

The Westinghouse operation is an interesting example of old vs. new methods of materials handling. Savings of more than \$57,000 in one year lend solid support to the company's claim that mechanized materials handling has paid dividends. •

Cooke Asks Industry Unity at Annual AWA Meeting

Says lack of joint action responsible for many Industry problems. DTA's Knudson outlines government warehouse activities

THE 61st Annual Convention of the American Warehousemen's Association, held in New Orleans May 4 to 8, inclusive, goes on record as the most successful in the annals of this organization, which comprises general merchandise and cold storage organizations (NARW).

After an official welcome by deLesseps Morrison, Mayor of New Orleans, in which he pointed out that the volume of shipping and warehousing passing through this port has made it the second largest in the country, Convention Chairman Jay Weil, Jr., President, Gulf Shipside Storage Corp., New Orleans, extended the association's official welcome to the largest attendance of any AWA meeting.

Knudson Outlines Activities

Defense Transport Administrator James K. Knudson was the principal guest speaker of the first joint session. He traced the growth of the warehousing industry and the part it has played in the past, including World War II. He also outlined what is being done currently in the full utilization of both the general merchandise and refrigerated warehouse fields in the present defense program.

(Data presented by Mr. Knudson is so pertinent to current warehousing problems that DISTRIBUTION AGE will present all the essential facts. However, due to the great length of the report and the lack of space, the first part will be excerpted below and the remaining portion will follow in the June issue.—ED.)

"Sheltering America's Production"

"Our modern economy would not be possible, if it were not for the fact that our goods are held back and protected until needed. While your task represents only behind-the-scenes activity in providing the public with 'what they want when they want it,' it is of untold importance to the continued progress of our nation and the world.

"Fortunately, I had experience in activities closely related to warehousing in my early days in Utah, where I was engaged in the wholesale and distribution of fruits and vegetables. As a result of this, I believe, I understand your problems more clearly.

Materials Handling Credited

"It is amazing to consider the changes that have since taken place in the warehousing business. Such things as the adoption of mechanical equipment, the use of pallets, which came into being largely during World War II, and the trend to one story buildings, have effected drastic changes in your industry.

"Since we are all closely concerned with movement of materials, I would like to touch briefly on transportation. In its broadest sense, it is the keystone on which the economy of this country rests. We can properly be proud of the world's best transportation system.

"But while warehousing is less conspicuous than transportation, it must be recognized as the necessary partner of transportation and, though unheralded and unsung, it plays an indispensable

NEWLY-ELECTED OFFICERS

American Warehousemen's Assn.

President—J. L. Gagini, Omaha, Neb.

Vice President—W. F. Long, St. Louis, Mo.

Treasurer—Willard Morse, Minneapolis, Minn.

The NARW

President—A. B. Efromson, Cleveland, Ohio

Vice President—R. M. Conner, Chicago, Ill.

Treasurer—C. B. Hart, Tacoma, Wash.

Merchandise Division

President—Irving S. Culver, San Francisco, Cal.

Vice President—D. M. Liddle, Des Moines, Iowa

Treasurer—R. M. King, Syracuse, N. Y.

New Members of Executive Board

Millard W. Young, San Francisco, Cal.

James W. Wilkerson, Kansas City, Mo.

John K. Dozier, Houston, Texas
Edwin M. Neylon, St. Louis, Mo.

role in our economy in lean years and fat.

"The experience in World War II proved conclusively that the private management of our nation's storage system is qualified to handle its problems under emergency conditions. DTA will, therefore, continue to assist on a standby basis only. I believe, in all confidence, that your industry will be able to meet and successfully surmount the obstacles and difficulties we are all now encountering and the more serious ones that may confront us.

"On the other hand, with international conditions as they are, we would be derelict in carrying out our responsibilities if we were not at this very moment giving serious thought to even more serious problems that may be anticipated.

"While we hope and pray that the present crisis will improve and not worsen, there could be no more tragic mistake than to proceed on the happy assumption that it will

(Please Turn to Page 63)

Military Use of Public Merchandise Warehouses

A coordinated program for use of commercial warehouse facilities
by army, navy and air force started with okay of "Chicago Plan"

IN THE first quarter of 1952, production under the rearmament program began to flow from the production lines in volume that could not be absorbed in government-operated space. Need for commercial storage in large cities, at ports and key railroad centers, developed.

Large cities, with 20, 40, 60 warehouses—or as many as 100 as in New York City's metropolitan area—can be handled with efficiency only through a local association, with a manager who takes the military requirement and allocates the component cars to the various warehouses. Associations of this type operated in 23 cities during World War II.

Approved Chicago Plan

Chicago and New York submitted association agreements early in 1952. The deputy attorney general finally approved the Chicago plan in April of this year. New York has rewritten its plan to conform with Chicago's, and Philadelphia has based its application on the approved Chicago form.

As these group associations are approved by the Department of Justice, the needs of the armed forces will be met in the large metropolitan areas as they were in World War II.

Commercial Warehouse Field Officers have inspected most of the commercial warehouse space in the nation, and are applying the individual or the group contract as the situation dictates. The plan is now in active operation in many cities.

At a meeting of the Munitions Board Storage and Handling In-

By B. A. Dickson
Terminal Warehouse Co.
Philadelphia, Pa.
Chairman,
Merchandise Warehouse Task
Committee

dustrial Advisory Committee on September 13, 1950, the Department of Defense submitted the problem of coordinated use by the Army, Navy, and Air Force of commercial merchandise storage facilities throughout the United States. During World War II, the services made separate arrangements with members of the public warehouse industry; frequently in competition with each other and sometimes wasteful of facilities.

This problem was assigned to the writer. His first step in approaching the "job" was to enlist the aid of Wilfred F. Long of the S. N. Long Warehouse, St. Louis, Mo., in setting up an adequate Task Committee.

Panel Selected

Mr. Long, then president of the Merchandise Division of the American Warehousemen's Assn., possessed a profound grasp of the industry and its problems, and had a nation-wide acquaintance with its leaders. He selected a panel of the ablest warehouse operators distributed geographically from coast to coast. These gentlemen were: J. D. Beeler, Mead Johnson Terminal, Evansville, Ind.; I. S. Culver, Gibraltar Warehouses, San Francisco, Cal.; R. C. Greeley, Greeley General Warehouse Co., Cleveland, Ohio; C. E. Hicks, New York Dock Co., New York; W. W. Huggett, North

Pier Terminal Co., Chicago; Wilson V. Little, AWA; and G. K. Weatherred, Dallas Transfer and Terminal Co., Dallas, Texas.

Less than two weeks later, on September 25, 1950, the Task Committee assembled at Chicago. It met with the representatives of the Armed Forces, headed by Lt. Col. Walter J. Mearls, U. S. A., Chief of Storage Division of Munitions Board Staff. G. M. McConnell, Packers Terminal Warehouse Corp., Chicago, Ill., also was invited to attend, because of his participation with the N.S.R.B.

Sound Background

The personal experience of the individual members of the Task Committee in World War II and Samuel G. Spear's history, "Warehousing in World War II," furnished sound background for a review of the errors of the last conflict and the preparation of "Recommendations on the Emergency Use of the Public Merchandise Warehouse Industry."

Highlights of the Task Committee's proposals were the use of both the individual warehouse contract and the group warehouse plan following the "Cleveland" and the "Kansas City" procedures; the institution of one government agency to contract, allocate, and deal with warehouses for all government departments; early clearance by the Dept. of Justice on actions on violations of anti-trust, restraint of trade, price fixing and other statutes; early clearance by other price regulating authorities; deferment of key personnel; and appropriate priorities on handling

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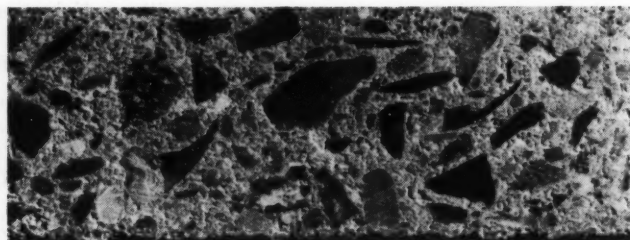


Application of a grout coat of cement to the underslab is the first step in building a good granolithic concrete floor



"Screeding" of poured concrete, which contains coarse, $\frac{3}{4}$ in. crushed basalt rock, levels topping to specified elevation

Hard-Top Floors Are Tops



"Absorption Control" floors show high density and even distribution

Your materials handling system is only as good as the floor on which it operates

A BUILDING, when you get right down to it, is nothing more than a floor surrounded by four walls—covered by a roof to keep out the elements. Whether large or small, a building must have a floor.

Economy-minded industrialists, harassed by narrowing profit margins, are literally staring at the floor. They have discovered that much of their overhead is being soaked up in maintenance costs

on floors which have cracked, "dusted," become weak through disintegration, or are just plain worn out. They know, too, that production without interruption is one of the keys to successful manufacturing. Time saved means dollars earned.

Floor Wear Becoming Severe

Modern plant practice and the needs of higher unit production require new and vastly more mate-

rials handling equipment and, in many instances, heavier equipment. Thus, this equipment means added wear causing earlier breakdown of inferior floors. At the same time, the efficient use of materials handling equipment depends on the maintenance of a hard, uniform surface, free from breaks and surface ruts.

A floor leads such a matter-of-fact existence that many manufacturers do not always realize



Dry cement on burlap "blotter" absorbs all excess moisture and immediately secures correct low water content rate



Within a few moments the absorption process dries to a point where concrete is strong and in condition for finishing

By Carl J. Larkins

*New England District Manager
Kalman Floor Co., New York, N. Y.*

the elements of production affected by poor flooring. More often than not, the floor is considered a job for anyone with a bucket of sand, a bag of cement and a shovel—despite the fact it will probably be subjected to more abuse than any other part of the building. Laying a good floor is an "art" requiring special techniques, skill and equipment.

Today's increased precision requirements emphasize the need for a non-dusting surface and a minimum of induced floor vibration. Our economy, geared to defense goals, demands ever-increasing and smoother production. Any interruption through early floor deterioration becomes excessively costly. And most important to production, employee morale is boosted by attractive floor and freedom from hazard engendered by rutted and worn floors.

Whether to install a concrete, wood, tile or other type floor depends, of course, upon the use to which the floor is to be put. But by far the greater number of floors now being constructed are concrete, of which there are essentially two types—monolithic (one layer) and granolithic (two layers).

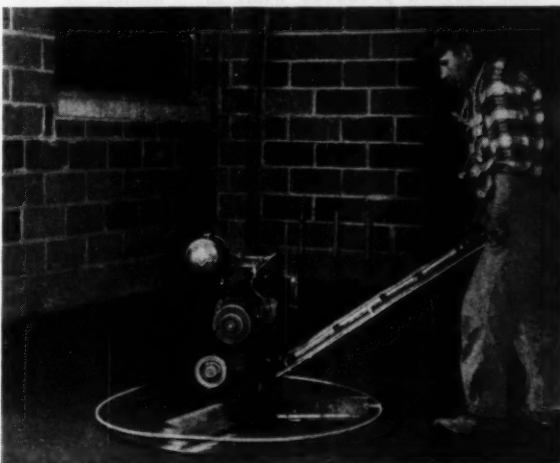
Monolithic floors are cheaper to construct, consisting of a single slab of poured concrete. Ordinary monolithic slabs which are floated and troweled do make good structural concrete, but do not give the type of surface which will resist heavy-duty wear.

Contractors have developed certain techniques designed to increase the hardness of



In the next step revolving mechanical floats do the initial compacting and float finishing operation prior to troweling

Several successive machine and hand troweling operations give maximum density, uniform hardness and smoothness



Hard-Top Floors . . .

(Continued from Preceding Page)

monolithic slabs. They include such things as liquid hardeners which combine with the concrete to form a surface skin 1/32 to 1/16 of an inch thick; sprinkling dry cement over the wet surface; sprinkling dry cement plus iron filings or dry cement plus a fine aggregate.

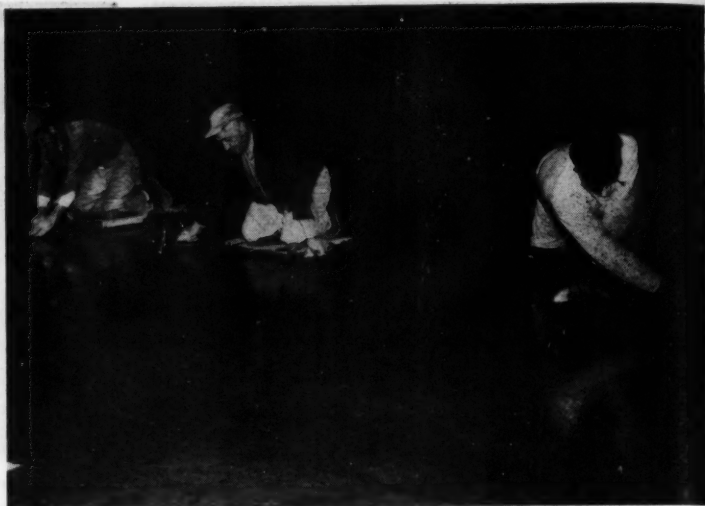
The Portland Cement Assn. points out that "a correctly proportioned floor topping will show a uniform distribution of coarse aggregate particles through the entire depth of finish and right up to the wearing surface. There is no film of laitance or weak mortar at the surface. When thoroughly cured to develop the strength of the cement paste binder, the topping is dense and strong. There can be no dusting or crazing. A concrete floor finish of this type will meet every traffic demand placed upon it. Such construction insures years of satisfactory service."

Top grade floors are produced by striking off the structural base slab from 3/4 to 1 inch below the required finished grade and installing a separate wearing course, using materials and methods that produce much greater density, toughness and wearing ability.

This method produces what is known as the granolithic floor.

The topping can be applied either on a fresh slab or as one of the last operations after heavy construction is finished. Any heavy equipment moved during the construction will be moved over the slab and not over the finished topping. The topping is thus saved from any premature wear.

Good granolithic floors usually consist of Portland cement, sand and hard crushed diabase, basalt or granitic rock. However, inferior granolithic floors can be made of the same materials. The difference is in the method and skill of installation.



A final hand troweling gives the Kalman floor its close-textured smooth dense surface. Now the floor is thoroughly treated and completely cured

A proper, low water-cement ratio produces the maximum strength and toughness in the concrete. The textbook minimum is 33 per cent by weight, or approximately 3 to 3 1/2 gals of water to one bag of cement. An excessive water content means excessive shrinkage, curling, cracking and pulling away from the slab or fill, as well as less strength, density and toughness.

Two Methods Used

Two methods are used extensively in granolithic flooring. One way is to use a minimum amount of water in making the initial mix. But one of the tricks in constructing a tough floor is complete adhesion of the cement (paste) to carefully selected aggregates. To obtain this, complete hydration of the cement is necessary—which means enough water to do the job.

If a low water cement ratio is used in the initial mix, there may be a lack of workability, causing a loss of density and toughness.

In the second, or "absorption control" method, enough water is used to make the mix thoroughly workable and then withdrawn under exacting controls to the proper specifications. The water is absorbed without disturbing the aggregates or bringing the fine matter from the bottom to the top. A definite suction bond is produced

between the topping and the underslab. The result is a tough, durable, impervious and smooth floor capable of withstanding heavy loads or excessive spillage.

Spillage is a problem faced by many industries, particularly where large amounts of cutting oils are used, or where liquids are moved across the floor in open containers. If the floor is porous, seepage can mean an early breakdown of the floor as the liquid destroys the bond between the cement and the aggregate.

There is no way to stop this destruction once the liquid has seeped through. But it can be prevented by constructing a floor which will prove resistant to all liquids—except, of course, certain chemicals to which no concrete floor is an obstacle.

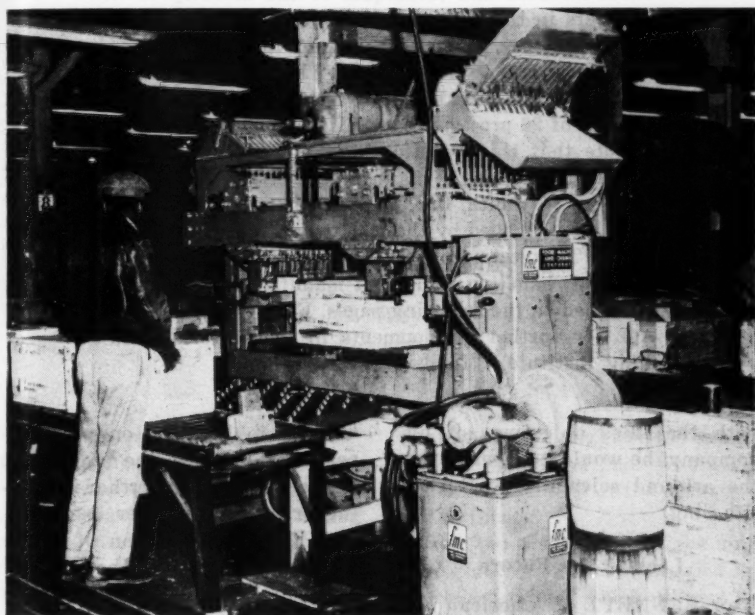
The secret of preventing seepage is in the density of the concrete. Density and the strength of the binder is the secret of toughness. Tests show that the granolithic, absorption-controlled floor, has a minimum crushing strength of 8,000 to 10,000 p.s.i. as compared to the average strength of 2,500 to 3,000 p.s.i. of structural concrete slabs finished monolithically.

Heavy-duty concrete floors of the granolithic type are being specified today by all types of industry, particularly where man-

(Please Turn to Page 51)

Army Ordnance Machine Lids 300 Boxes an Hour

Arsenal also has discovered big time-saver with semi-automatic
power banding machine which replaces the work of four men



Workman (above) guides band to gripper
on the semi-automatic banding machine

Automatic lidding machine and single
operator equal output of 10 workers

ARMY ORDNANCE has installed a "lidding" machine at its Benicia, Calif., arsenal which can fasten 300 lids each hour on wooden packing boxes.

The machine, developed by Food Machinery Corp., replaces ten men who would formerly have done the lidding operation with hammers. With three of the machines in operation at the California arsenal, the total labor saving is 30 men.

Because of the great variety of sizes of boxes and crates handled, it was necessary to design the machine to handle the 12 standard

sizes containers used by Ordnance, as well as any other special size requirements. The unit will handle boxes up to 50 in. long and up to 18 in. deep. No adjustments are required by the operator to set the machine for different size boxes.

The "liddler" is equipped with a hydraulically operated elevating bed and two laterally moving fixtures which hold the nails in perpendicular position. The nails are fed by chutes which release the nails individually.

The boxes—when their covers are in place with a single nail hold-

ing each cover—move onto the bed from a conveyor as a hold-down plate comes into position. The two side fixtures move laterally into position as stops come to rest against the sides of the carton, insuring correct positioning. The bed rises, pushing the wood into the nails, and the cycle is completed when the bed lowers.

Power Banding Machine

Another interesting packaging item at the arsenal is a semi-automatic power banding machine. The
(Please Turn to Page 59)

Industry Leaders on Buying Materials

THE QUESTION

"What Should an Industrial Executive Know Before He Approves Plans for the Expansion of A Materials Handling System?"

Plan for Expansion

JOHAN G. BUCUSS of Acme Steel Products Division maintains that there has been such progress in materials handling that systems must be designed to permit adoption of new or improved advances in equipment, methods and materials. He feels that the system is the result of a careful balance and analysis of many factors, which a change resulting from new equipment, new packaging, improvement in production, shipping, warehousing or distribution might upset.

Mr. Bucuss suggests that the industrial executive should be concerned with these factors in the proposed materials handling expansion:

1. Why is the system being revised? Because the former system was inefficient, due to a change in rate of production or availability of newer equipment?

2. Is the proposed system merely an addition to present practices and equipment or might it be necessary to install a new line?

3. Examine the effects of the revised system in how they would affect the personnel involved. Will there be radical changes in the rate and type of operation they will perform? Will it make their jobs easier and allow them to more fully utilize their abilities?

4. Determine the costs of the revisions and the costs of maintaining the new system. If the plan involves capital expenditure, be sure that a reasonable amortization period has been selected.

This panel member concluded that if the materials handling engineer could coordinate the use of equipment, methods and materials

THE Material Handling Institute started its popular "Industry Service Plan" in the latter part of 1951 with the purpose of bringing information of the latest methods and techniques of the industry to its members in the materials handling field.

This feature, "What Should an Industrial Executive Know before He Approves Plans for the Expansion of A Materials Handling System?" is the first in a series of 26 projects that MHI has planned for 1952.

Note that this question was asked of those men whose business is the manufacture of MH equipment.

Harry W. Smith, Inc., materials handling publicists, have been engaged by the MHI to promote part of the work. The statements of 11 leading figures in the materials handling equipment manufacturing field are contained on the following pages. Follow DISTRIBUTION AGE for further developments in the Material Handling Institute's "Industry Service Plan."

with the sales objectives of his company, he would be a master in the art and science of materials handling.

Look to the Future

JS. BENNETT of American Engineering Co. placed himself in the position of the typical industrial executive, buying, not just selling, materials handling equipment. He considered the case in the light of his own plant requirements, based on these factors regarding future operations:

1. Estimate future sales both as to volume and type of sales. In future operations, the weight and size of pieces handled may vary and require different types of MH equipment.

2. Determine where materials will be stored in the future. Outside and inside storage areas may require different types of equipment.

3. Determine the amount of ma-

chining to be done on parts received, and where the parts must be transported for further machining or stored for later use.

4. Know the location of future building expansions, the types of buildings and what will be manufactured or stored in the buildings.

5. Judge whether money could be better invested in acquiring or developing new lines.

6. Determine the best time for amortization of the expense of expanding the MH area. Despite profits and government permission for rapid amortization, it might be better to write off over a longer period of time.

Stresses "Intangibles"

JP. LAWRENCE of The American MonoRail Co. stressed the "intangible" extras—in addition to the customary dollar savings—which MH engineers might point out to management in proposing a new or improved system. These are

rs Give Suggestions Is Handling Equipment

THE PANEL

John Bucuss

*President, Strapping Division
Acme Steel Co.*

J. S. Bennett

*Vice President
American Engineering Co.*

J. P. Lawrence

*President
The American MonoRail Co.*

S. K. Towson

*President & General Manager
The Elwell-Parker Electric Co.*

J. M. Gerrard

*President
A. J. Gerrard & Co.*

C. B. Smythe

*President
The Thew Shovel Co.*

A. L. Lewis

*President
Lewis-Shepard Co.*

Walter C. Steubing

*President
Lift Trucks, Inc.*

C. W. Henkle

*President
The Mercury Mfg. Co.*

J. R. Sebastian

*President & General Manager
The Rapids-Standard Co., Inc.*

Edgar B. Miller

*Vice President & General Manager
Sterling Bolt Co.*

(1) an orderly plant and systematic housekeeping, (2) additional floor space due to a continuous movement of materials, (3) better work as a result of reduction of fatigue in workmen by eliminating heavy lifting, (4) reduction of injuries and (5) happier personnel and improved morale.

Mr. Lawrence maintained that the decision for expansion of a MH system couldn't be based entirely on the usual sought-after man-hour savings. He cautions not to forget those "intangibles."

Question the Easy Way

S. K. TOWSON of The Elwell-Parker Electric Co. pointed out that the executive in approving a new materials handling system expects it to solve a problem. Thus, he has based his suggestions on planning for the future requirements and responsibilities of the MH system. He cautioned against accepting the easy method of ex-

pansion, which might be too expensive, or a method that would reduce the flexibility of the operation in the future.

He cited the example of the long time rigidity of operation with an overhead crane which might do the present job for which it has been designed but would not be able to expand with the system when a new bay had been added to a building. Materials handling systems, Mr. Towson concluded, should be based on mobile equipment which will expand readily into new areas of operation.

Study Expensive Items

A. L. LEWIS of Lewis-Shepard Co. feels the industrial executive would want to know whether the proposed expenditure of cash for an expanded MH system would pay reasonably good returns within a reasonably short period of time. He stressed these points:

1. The costs of materials han-

dling have been neglected in most industrial operations;

2. Expensive power equipment should not be sold when a less expensive piece of equipment would do a comparable job in situations of infrequent movement, very light loads and short hauls. He agreed with Walter C. Steubing of Lift Trucks Inc. in stating that no single type of industrial truck could handle all materials handling jobs;

3. A determination of possible savings should be made as well as a determination of the proper equipment for each job so that the savings would reach the maximum.

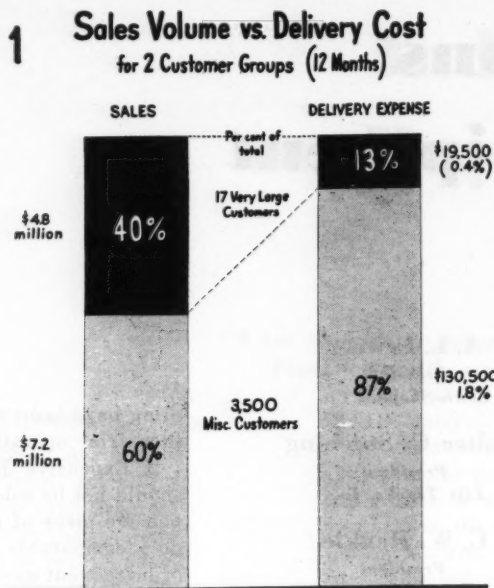
Avoid Complications

WALTER C. STEUBING of Lift Trucks Inc. raised a point that too many materials handling systems become too complicated and involve extra fancy equipment. He agreed with A. L. Lewis of Lewis-Shepard Co. that "there is no one piece of equipment that can economically handle all jobs."

Mr. Steubing stated that research has found that big savings can be made in using short sections of roller or belt conveyors, hand-lift trucks and skid platforms, or in other operations—fork trucks, tractors, trailers, hoists or chain blocks according to the MH problem. He stressed both a simplification of the system and the merits of all materials handling equipment, depending upon the particular moving assignment.

This panel member concluded that the materials handling engineer should convince the indus-

(Please Turn to Page 56)



2 Cost Per Stop
Total, and for Two Customer Groupings

TOTAL :	
DELIVERIES, NUMBER	6,437
DELIVERIES, COST	\$12,000
AVERAGE \$1.86 (1.25% of sales)	

17 Very Large Customers (40% of Volume)

DELIVERIES, NUMBER	80
DELIVERIES, COST	\$1,560
AVERAGE \$19.50 (0.4% of sales)	

3,500 Other Customers (60% of Volume)

DELIVERIES, NUMBER	6,357
DELIVERIES, COST	\$10,440
AVERAGE \$1.64 (1.8% of sales)	

Customer Analysis Discloses

Survey finds gross sales volume gained by servicing small-order accounts is not worth high delivery and bookkeeping costs entailed

By W. L. Vandewater
Merchandising Manager
GMC Truck & Coach Division,
Pontiac, Mich.

IN OUR first report to NAWGA (published in DA, April, 1952, Page 22), we pointed out that the accounting custom of reporting expenses in per cent of sales minimized—yes, even concealed—important opportunities for cutting delivery expense.

The Test-House, whose figures you are about to see, felt somewhat complacent because its delivery expense was only 1.25 per cent of net sales. Its management knew of only one other compa-

rable operator with a better ratio, but it was inclined to question the completeness of his accounting.

This Test-House is a metropolitan operation having a total annual volume of \$12,000,000. It handles all dry groceries, tobacco and confectioneries, and institutional services as well as grocery accounts.

Service is extended to approximately 3,500 accounts in a 30-mile radius. This is handled by 19 vehicles composed of eight straight

trucks and 11 tractor-trailers.

As shown in Chart 1, above, 17 very large customers accounted for 40 per cent of the total volume. But, the 17 large customers entailed only 13 per cent of total delivery expense; or, in terms of net sales, 0.4 per cent. The remainder accounted for 87 per cent of total delivery expense; or, in terms of net sales, 1.8 per cent—more than four times the cost of the other.

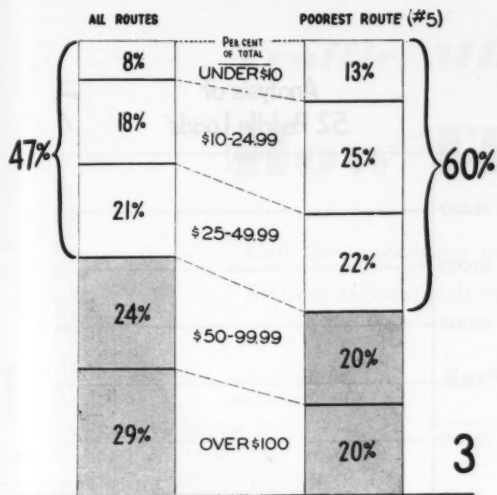
Chart 2 shows that, in the month of April, 6,437 deliveries were made for a round cost figure of 12,000—or an average of \$1.86 per stop. After eliminating 80 deliveries to the 17 large customers, the average dropped to \$1.64 per stop.

The large customers cost nearly \$20 per delivery. But, because of their very large order size, the percentage cost was only 0.4 as

EXCESSIVE

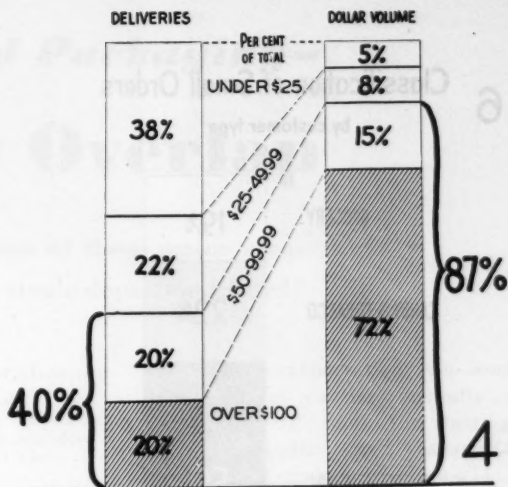
Peddle Deliveries Classified by Size

Number and Per Cent of Total



Route #5 deliveries Classified by Size

Number and Value—% of total



NEXT MONTH

The author ends this series with detailed information on fleet maintenance practices

DELIVERY COSTS

against 1.8 for the remaining customers.

Now let's take a look at the kind of orders which must carry an average stopping cost of \$1.64.

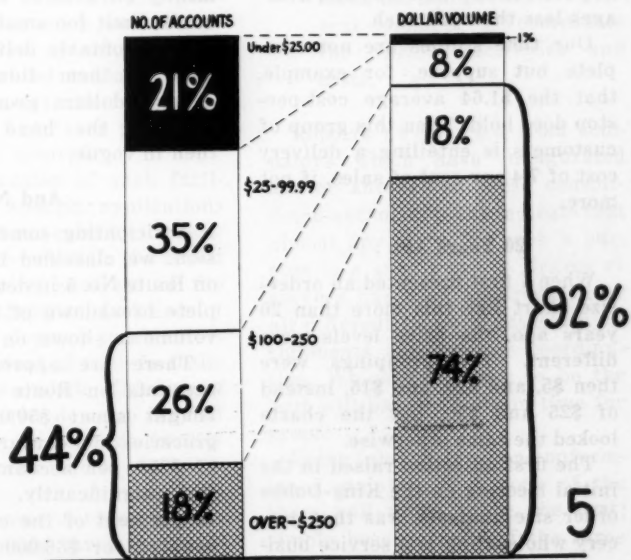
Chart 3 shows deliveries, classified by size, for all routes (excluding the 17 very large customers) compared with the order size showing the poorest route. Note that nearly half of the orders on all routes, and nearly two-thirds of the orders on the poorest route, average considerably less than \$50 each.

In fact, 26 per cent of all orders and 38 per cent of Route No. 5 orders are for amounts less than \$25. As many a retail supermarket shopper knows, that is cutting delivery down to family size.

The next chart compares the number and value of deliveries by size groups on Route No. 5, the

Customer Monthly Volume Route 5

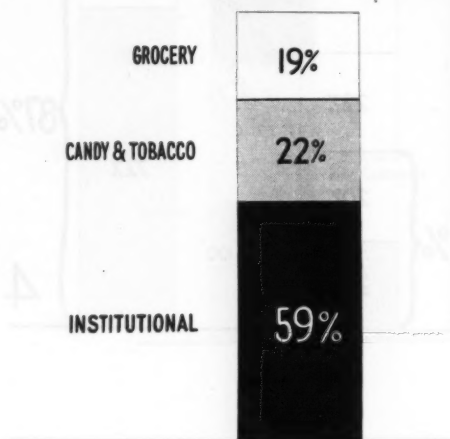
No. of accounts and dollar volume—(% of total)



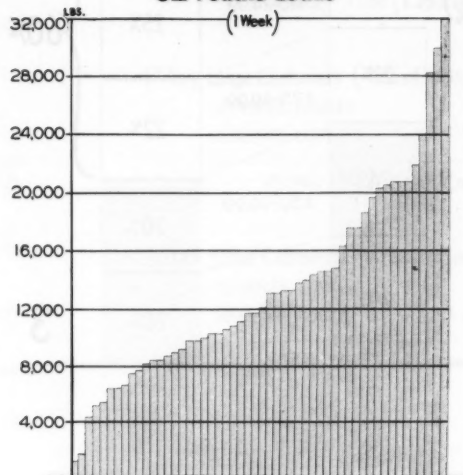
... Excessive Delivery Costs

(Continued from Preceding Page)

6 Classification of Small Orders by customer type



Analysis of 52 Peddle Loads



route with the poorest order size showing. Note that 38 per cent is for amounts less than \$25 each. This accounts for only 5 per cent of the total route volume.

A total of 60 per cent of the deliveries averages less than \$50 each, and accounts for only 13 per cent of total route volume. A total of 305 deliveries in February amounts to less than \$50 and averages less than \$22 each.

Our time studies are not complete but suppose, for example, that the \$1.64 average cost-per-stop does hold. Then this group of customers is entailing a delivery cost of 7.4 per cent of sales, if not more.

20 Years Ago . . .

When I first presented an order-size chart like this more than 20 years ago, the price levels were different. The groupings were then \$5, and \$10, and \$15, instead of \$25 and \$50, but the charts looked the same otherwise.

The first objection raised in the initial meeting on the King-Dobbs order size analysis, was that grocery wholesaling is a service business; that if a good customer

wanted some special service, it was good business to give it to him—even at a loss. I remember, also, some comments about small accounts helping to carry the overhead by supplying added volume. It subsequently developed there, and again in the Louisville Grocery Survey, that most of the small deliveries went to accounts, mostly on a c.o.d. basis or on a credit limit too small ever to permit a profitable delivery. In fact, most of them didn't contribute enough dollars gross margin to pay for the hand bookkeeping then in vogue.

... And Now

Anticipating some such discussion, we classified the customers on Route No. 5 in detail. The complete breakdown of total monthly volume is shown on Chart 5.

There are approximately 200 accounts on Route No. 5. They bought about \$50,000 worth of groceries in February, an average of \$250 per account per month. But, significantly, 37 accounts, 18 per cent of the customers, accounted for \$36,000 business—74 per cent of the route total—an

average of about \$1,000 per account per month.

The remaining 165 customers averaged \$86 per month. In fact, not one of 113 accounts ever reached \$100, and that group averaged only \$41 per month. An underprivileged family should produce more than that in a month!

Small Volume Accounts

Nearly 90 per cent of the small orders (88 per cent, to be exact) came from accounts which are small both by order size and by total monthly volume. In fact, two-thirds of all the small orders on Route No. 5 came from accounts that produce less than \$100 per month. Yet they are offered delivery service four times a week.

One third of the accounts made only one purchase in a month—over half bought only twice. Considering the cost of each delivery—maybe that's good. Fifty-six accounts—more than one fourth of the total—turned in no order over \$25, yet they entailed nearly 20 per cent of the delivery expense and contributed only 2 per cent of the route's dollar volume!

(Please Turn to Page 53)

Traffic, MH and Packaging - How They Overlap

Can the necessary coordination of these major areas
be best accomplished under a single department head?

LAST month the overlapping functions and problems of traffic management, materials handling and packaging were studied from the overall cost viewpoint, the human element, and the scientific considerations.

Problems arising from desires to effect a change in one of the areas of these activities, and the effect upon the other activities, were considered. That such problems could be solved to the best interest of all concerned was exemplified by one case history from the writer's experience. The key was the application of the principle of coordination and application.

The Organizational Approach

At this time, we will consider the one further item, organizational approach. It is an issue that traffic managers question, and one which the writer would like to explode. First, we will go back to our "assumption of pertinent points," covered last month. (See Page 59, DA, April '52.)

"5. The areas of overlap can be explored separately."

To this we will add:

"5a. The overlap areas are the points where coordination, cooperation and a consideration of all costs are necessary."

From the two foregoing assumptions, and for the sake of discussion, we will further presume the necessary coordination and cooperation can be best accommodated under a single department head. We also will assume that the materials handling, transportation and packaging area of cost, being

By **W. J. Dernberger**
*Supervisor,
Materials Handling Engineering
Metal Stamping Division
Ford Motor Co.*

a unit-area, should be a responsibility of a single department head. You may not agree with these assumptions, but for the sake of discussion let's follow them out to a conclusion, organizationally.

There is one other item that ties the whole area of activity together, and that is the local facility for receiving, shipping and storing materials. The extremely costly mechanical handling equipment tied in with modern industrial handling techniques, requires a flexibility or universal-use design which recognizes both carrier and packing specifications. This facility, composed of static and powered equipment such as containers, fork trucks, cranes, etc., cannot be engineered and used effectively, if consideration for commercial carriers or packaging techniques is ignored.

The distribution of such facilities — their specific applications and uses, and the extent of investment in them — must be the result of an extensive analysis of the whole job. Otherwise, each area of activity will demand local coverage to the extent of over-facilitating the job as a whole. This line of reasoning carries down so far that each foreman has enough facility to cover the peak load of his small-area job.

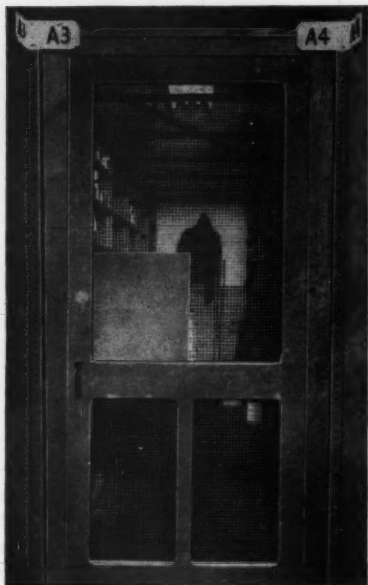
The above general reasoning has resulted in many varying organizational assignments.

1. Transportation, via commercial carriers, usually costs more than the intra-plant handling and transportation of materials. Result: The traffic manager is made the non-productive general manager to coordinate the various activities and costs.
2. The final result of all materials procurement and transportation being physically consummated as a materials handling service at the point of use. Result: The materials handling manager is made the nonproductive general manager to coordinate the various activities and costs.
3. Because all expense operations are "service" operation. Result: An "outside" party is made the non-productive general manager to coordinate the various activities and costs.

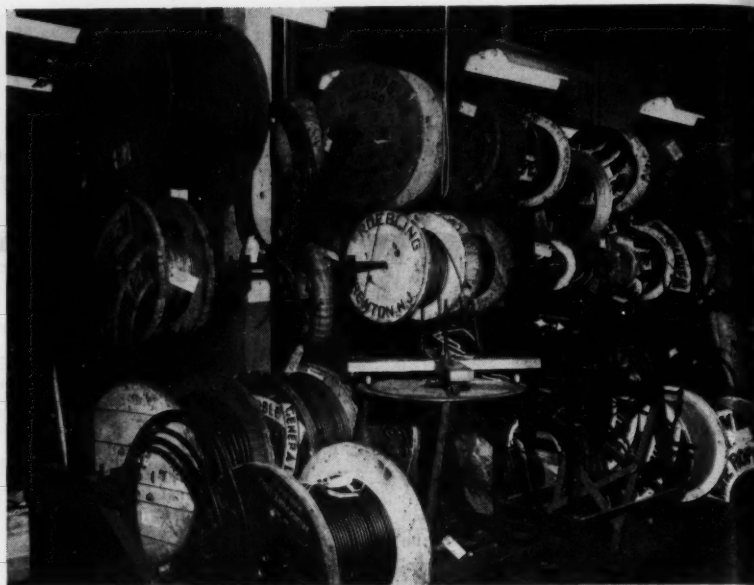
Reports received from companies which have inaugurated one or another of these consolidated-authority plans indicate that almost any move for such a purpose is a good move. A degree of success has been apparent under all different types of authority assignments and activity coordination. Which will prove to be the best will have to wait on time for proof.

Being inherently a non-conformist, I maintain that none of the three will prove to be the best; simply because none of the three

(Please Turn to Page 58)



A wire enclosed area for small items facilitates handling, reduces pilferage



Planned housekeeping practices pay dividends. Here the obvious value of a vertical rack is partially cancelled by the clutter of items blocking its easy use

Warehouse Efficiency Checklist . . . Part 2

Have You Streamlined

Don't overlook your materials handling system as a route to lower

IF YOUR company could run its warehousing and materials handling operations through an efficiency wringer and squeeze out a full one per cent of the sales dollar, would the venture be worth a trial?

In typical manufacturer, wholesaler, and retailer warehouses that much—and usually more—can be trimmed from operating costs. It can be achieved simply by giving the warehousing and materials handling setup a good overhaul and an all-over tightening-up.

By Lloyd Moore

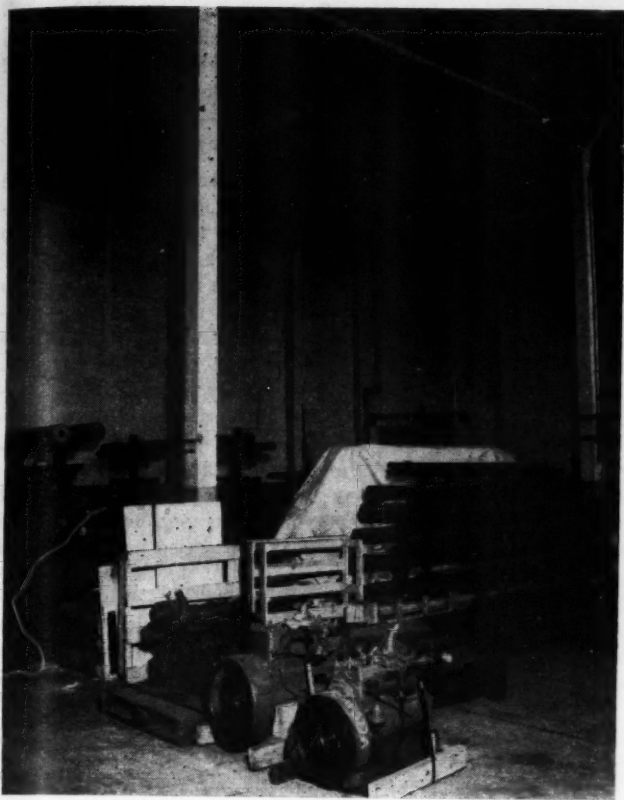
PART 2 in a Series of Three

Nationally, top management seems to be dwelling on this common theme: "Now that we know what to expect in the way of post-war business, we must consolidate our position . . . must gear our facilities and services to this era of 'expanded normalcy.'" Unfortunately, in too many companies the warehouse and materials han-

dling operations receive only step-child attention during these consolidations.

Whether your company falls in that group or not, there probably are substantial savings to be gained by wading in with both feet into the whole problem of warehousing and materials handling.

Any study that was made as recently as five years ago probably is obsolete by now; because this is one phase of the business where bold, revolutionary devices, methods, and procedures are being in-



Overhead space costs as much idle as it does in use. Vertical squeezing then, becomes as important as horizontal squeezing

Handling?

costs and higher efficiency

produced every day. It has received stepchild attention too many years. Now the industry is working overtime to catch up.

If there is even a remote chance that you can save one per cent in operating cost, won't you agree that a real down-to-earth survey—a detailed analysis of the space, equipment, methods and procedures is worth making in your warehouse? Run down the reminders on the following checklist and see how many items would make people flinch in your company.

Extra Handling Costly

Are any items being handled more times than they need be? Extra handlings of merchandise cost big money at today's labor rates. They also are costly in terms of customer service.

1. Can any "order assembly" handlings be eliminated by stocking together those items that are usually ordered together?

2. Can any "order assembly handlings" be cut out by leaving outgoing merchandise on flat bed

trucks or skids until the outgoing carrier arrives?

3. Will a conveyor system that moves merchandise continuously, from one busy area to another, pay for itself in man-hours saved and in improved customer service?

4. Is "cramped quarters" a reason for extra handling in any of your buildings? Do you have to move one item to get to another?

5. Can the space on the lower floors be made more productive—so there will be more room for items now handled to and from inaccessible upper floors?

6. Is there any extra handling in the loading of outgoing carriers that could be eliminated by better load planning?

Utilize Vertical Space

Is horizontal or vertical space being wasted? A good proportion of the warehouses that appear to be bulging at the seams actually have more space than is needed. Space usually needs "squeezing" in both directions.

1. Can any items be tiered higher?

2. Can any be stocked more compactly?

3. Can any items be stocked in combination to gain better use of headroom?

4. If the item were moved elsewhere, would floor load capacities permit higher stacking?

5. Would the installation of overhead or mobile tiering equipment make possible more efficient use of vertical space?

6. Can the width of any aisles be reduced by switching to narrower, more maneuverable equipment?

7. Can any aisles be eliminated?

8. Can balcony storage be employed for slow-turn, seasonal items?

9. Can the size of the warehouse office, or any of the handling areas be reduced?

Structural Changes May Pay

Are any structural changes in the building warranted? It is a common practice for companies to wrestle, year after year, with handling problems that could be licked completely by making simple structural changes.

1. Do you honestly have enough shipping space? Would an exten-

... Efficiency Checklist

(Continued from Preceding Page)

sion of the shipping docks pay you dividends?

2. Is there traffic congestion around your shipping and receiving docks because there are not enough doors to process the volume of merchandise that is being handled?

3. Is loading and unloading of merchandise impeded by your not having truck or rail-high dock facilities?

4. Is the elevator a bottleneck that could be eased by installing floor-to-floor conveyors?

5. Would a "mezzanine warehouse office" arrangement save enough stocking space to warrant consideration?

6. Will enclosing of the shipping and receiving docks mean enough, in terms of worker morale and reduced merchandise damage, to justify your doing so?

Labor Efficiency

Can the number of people doing particular jobs be reduced? An analysis of the handling operations that require great manual effort often highlights the fact that things are being done the hard way and with no good reason.

1. Will the installation of labor-saving handling equipment save enough manual effort to pay for itself in a reasonable length of time?

2. Would a change in the stocking or handling method make it possible for the item to be handled with fewer people involved?

3. Will a real streamlining of the warehouse paper-work system enable you to reduce the size of the warehouse office staff?

4. Are many man-hours being spent unnecessarily doing such small things as opening rail car doors, moving dock bridges, or in hand-addressing packages? The market is practically flooded with worth-while labor-saving devices, many of which pay their way many-fold.

5. Do you make maximum use of gravity in your warehouse? It is the cheapest way to move goods to a lower level.

Build Customer Service

Can customer service be improved? A warehouse used to be regarded as merely a place to store merchandise. In today's competitive economy, it is more realistically a machine for the expeditious handling of merchandise in the back door and out the front door.

1. How long does it take to get out a typical order from the time the shipping instructions reach the warehouse?

2. Does order filling require an excessive amount of time because items that are usually ordered together are not stocked together?

3. Are the fast turnover items in the most accessible spots?

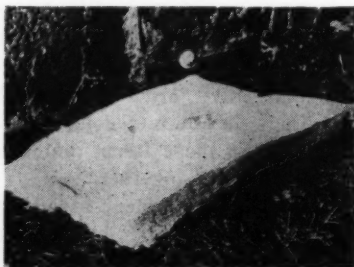
4. Are warehouse communications sufficient to permit voice control throughout the processing of an order?

5. Are any of your claims for damaged merchandise originating right in your own warehouse?

6. Are "will call" customers treated courteously and are their orders filled promptly?



Versatility of new packaging material is illustrated (above) as Lawrence Gilman of the Gilman Bros. Co., manufacturers, holds material in the palm of his hand exposing it to the flame of acetylene torch, and (below) as an egg, dropped from a 25-ft height, rebounds from the material.



7. Are outgoing packages addressed in such a way that they are readable and also create a good impression on the recipient?

Housekeeping and Maintenance

Is the warehouse maintenance plan fact or fiction? Tidy housekeeping and prompt attention to needed repairs improves workers' morale, helps minimize damage to merchandise, assures cleaner outgoing merchandise, and saves the company money over the long haul.

1. Is water damage a possibility? Check roof conditions, seepage through walls, drain pipes, window lights and sewers.

2. Are floors in good condition? Is your assembly being retarded or is merchandise being damaged as a result of floors that need repairing?

3. What impression does your building make on people who get only an external view? Is your sign a credit to your company? In effect, does it say "Welcome"? Is repainting in order? Does the whole outside appearance convey the feeling, "We're a heads-up outfit"?

4. Is handling equipment serviced regularly and properly?

5. Are the washroom and locker facilities for the warehouse personnel conducive to happy employees?

6. Are any floors being overloaded?

7. Are there plenty of well-placed fire extinguishers? Are they the right type for the merchandise you carry?

8. Have you taken adequate precautions against theft and pilferage?

9. Is the whole internal stocking plan neat and orderly so that order pullers can find what they are looking for without difficulty?

The \$64 Questions

The most vital questions have been saved until last. Rationalizing on these questions will cost your company big money over a period of time.

1. Is the man who heads up your warehousing operation big enough for the job? Can he really plan and organize as he should? Can

(Please Turn to Page 82)

It's been
a busy
day!



Gosh . . . I've been going since early morn but the results were worth it. First, there was that furniture house. We figured how they could save money by routing a different way. Then—a building materials firm where we discussed their present lease and a possible new location. Following that came a call from a paper company who wanted help on getting an industry track built. Then a floor covering concern that had a pack-

ing and loading problem. Our container engineers are helping out on that.

Let's see—what else? Oh, yes, that new manufacturing firm that needed a line of rates for moving its products to consuming areas. Also a woolen mill in connection with L.C.L. service, and so on.

That gives you an idea as to how the varied experience of our freight representatives can be helpful to you. Call on your nearest U. P. freight man at any time. He's there to assist and advise you.

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MHI's Pittsburgh Meeting Covers Dry-Bulk Handling

Experts offer solutions to handling problems in four more industries

THIS report on dry-bulk handling in the ceramic, chemical, coal mining and grain handling industries is the second and final portion of the recommendations submitted by The Material Handling Institute.

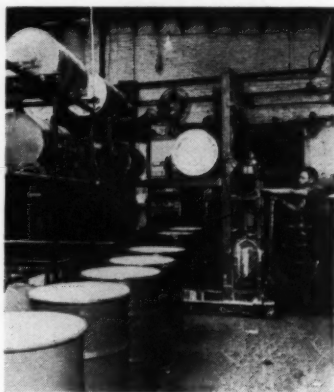
Last month, DA presented the first part of the report with a discussion of major problems involved with dry-bulk handling in the metal-producing, mineral-mining, quarrying and processing industries.

MHI sponsored a meeting in Pittsburgh, in late February, in which industry men met to discuss the various problems and solutions discussed in DA's April and May issues.

Ceramic Industry

PROBLEM: Would a silo-and-conveyor installation be economical (in replacement of an outside-conical-pile and scoop-truck system) in the raw storage and handling of chrome, magnesite, olivine and flint at a use rate of 400 to 800 tons a day (max. of 50 tons per hour). Specifications: 8 or 16 hour cycle of batching operation; average lump size of 2 in.; 4,000 to 30,000 tons in each pile depending on mineral; no harm from moisture (although drying to remove 2 to 3 per cent moisture precedes batching); 300 ft maximum scoop truck run from piles to batching point. What is "economic limit" or "break-even point" between alternate systems?

DISCUSSION: More detailed analysis would be required to determine exact break-even point; but most conferees were of the opinion that for the use rates and intermittency of operation cited, a fully developed silo-and-discharge-con-



The illustration shows how steel storage racks were used to take advantage of this plant's overhead storage space. Chemicals, in this case, are shipped in the drums, but the racks can handle a variety of bulk materials.

veyor system would likely cost more than justified by savings in operating costs over any reasonable amortization period. Further, no improvement of product or reduction of loss would seem to be a marked advantage worth investing for. One conferee with experience on sulphur at the same approximate storage and use rates stated, "Haven't been able to beat pile and scoop-truck system."

Portable bin boxes were suggested, but deemed also too costly for refractory-producing plants of the indicated size. An approximation of silos could be made, it was pointed out, by concrete partitioning into bins—especially since overhead belt conveyor with trippers was already in use for piling after crushing of received minerals. Space utilization might also be improved at the expense of minor construction.

PROBLEM: What is good box-car loading system for outgoing loose materials ($\frac{1}{4}$ -in. size and less) which won't create present serious dust problem?

DISCUSSION: A suggested solution by using roof-hatch cars was spiked by noting that such cars are hard to get or rent under today's conditions and that the use of such cars poses a difficult unloading problem for customers.

Most workable idea was use of an automatic conveyor-loader of type which requires no individuals inside the car. Further, such unloaders permit car doors to be closed down to chute-width opening during the loading operation—and canvas or rubber flaps can cover even this narrow opening above and below the chute.

Chemical Industry

PROBLEM: Users of chemicals in volumes as small as 1 to 4 carloads per month constitute a large segment of American Cyanamid's business for semi- and free-flowing dry chemicals. Typical consuming industries are paint and varnish manufacturers and the paper industry.

These chemicals are currently shipped in multiwall paper bags which cost 10 to 20 cents each and hold 50-100 lb. The selling price must cover cost of the product, bags, and also labor cost in packaging and shipping.

Cyanamid would like to ship to these customers in bulk, using hopper bottom cars. Savings resulting from elimination of conventional containers and the accompanying labor costs could be passed on to customers in the form of a
(Please Turn to Page 40)

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Automotive-Type Brakes

have extra braking surface, permit smoother, safer stops.

Roller Carrier Uprights

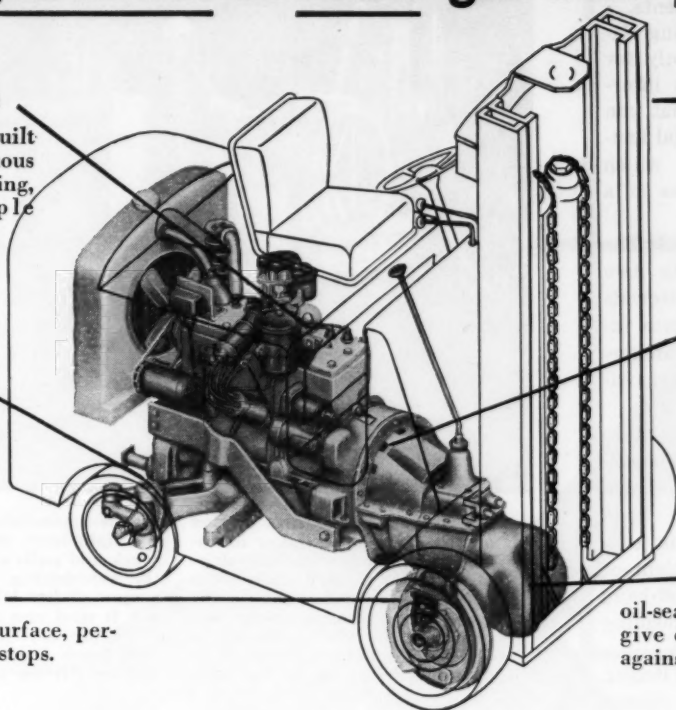
reduce wear from friction, increase lifting efficiency.

Fluid Drive

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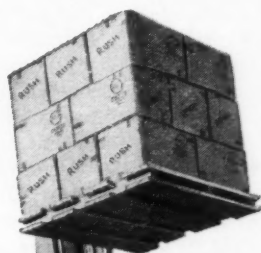
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... Dry-Bulk Handling (Continued from Page 38)

lower product price. On the basis of these savings, the customer must justify facilities at his plant to receive and handle bulk shipments.

Conventional bulk-handling facilities appear to be too costly for these customers to take any interest in installing them. What can the manufacturers of material handling equipment suggest which would provide such facilities at a minimum capital outlay?

SUGGESTED SOLUTIONS: The problem divides itself into two parts — unloading the materials from a bulk-shipping car into intermediate storage, and transferring the materials from intermediate storage to the points of use.

Two methods of unloading were suggested — pneumatic and mass-flow. Some of the materials are hygroscopic and corrosive when moist; therefore, pneumatic conveying introduces the problem of moisture in the air. An off-hand estimate for pneumatic unloading equipment was \$8,000.

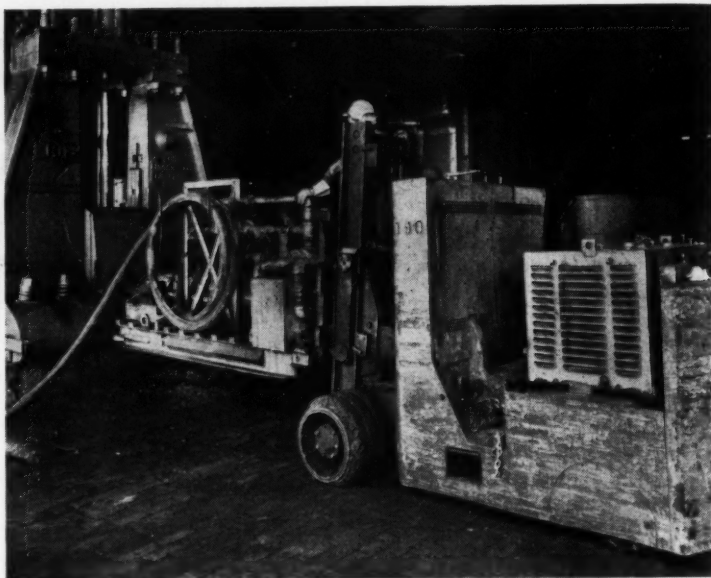
En masse conveying (Redler, Mass-Flow, Bulk-Flo, etc.) seemed to be an effective method for handling the unloading. In addition to circumventing the moisture problem, this approach was thought to be less expensive.

Two methods for handling from intermediate storage were suggested, both involving the use of portable bin boxes. In one case a silo would be provided, large enough to hold the contents of a car and a half. About 10 bin boxes would be needed to transfer from the silo to the points of use.

In the other case, the silo would be eliminated by providing enough bin boxes to hold at least a car and a half, requiring about 40 boxes in inventory. The estimated cost would be about the same, the additional boxes costing about as much as the silo.

Hazardous vapors in the area prohibit use of fork trucks. The customer may have to provide air-operated or explosion-proof lifting and tilting equipment at point of use.

A total figure on the order of \$15,000-\$25,000 seemed to be a rea-



An air compressor unit carried on the forks of a Baker industrial truck makes die key driving easy for a large midwestern automobile manufacturer. In the forge shop, a compressor was mounted on the forks of a 12,000 lb Baker truck. The operator drives up to the forg-

ing hammer, raises his forks to the right level, then gets off the truck and pulls a lever to propel the key driving ram. Formerly a crew of five laborers jockeyed a 6 ft steel ram into position to drive the keys home. Now the fork truck is used full time on the key driving jobs.

sonable approximation of cost—amortizable in a reasonably brief period. It was thought that the customer would find additional savings in his own operations, besides the savings in purchase price of the chemicals, making justification of bulk handling facilities promising.

Coal Mining Industry

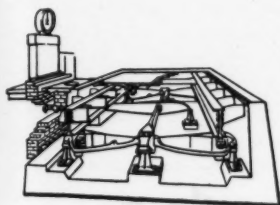
PROBLEM: A common underground conveyor problem faces the coal mining industry. Coal, a low priced commodity, sold by the ton rather than by the pound, is actually selling for less today than it did in 1948. Because cost of labor has risen sharply, as well as most supplies purchased by the industry, an effort is being made to reduce production costs; for the fuel industry in the United States is one of the most competitive of all major industries.

The belt conveyor is rapidly becoming the standard method of underground mine haulage. This conveyor is particularly well suited for the mining of "low coal"—or thin

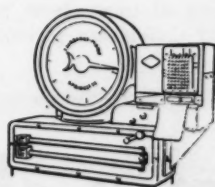
seams. Whereas a surface belt may last from 10 to 15 years, an underground belt because of unfavorable conditions may last only four years. The cost of rubber and canvas had soared in recent years. This has led to increased costs of replacement and maintenance and is working a hardship with the solid fuel producers.

Another consideration of this problem is the extra safety precautions required by the mining laws because of the remote possibility of fire hazard through belt friction. Still another contributing factor is the necessity for coal companies to stock huge quantities of replacement belts. For example, one company producing about five million tons of coal per year has a reserve of 200,000 ft of 30 to 36 in. wide conveyors on hand which means that between five to six million dollars are tied up in this one item.

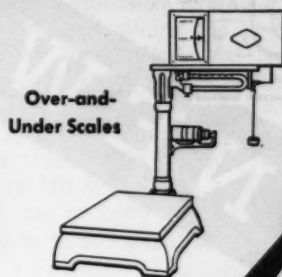
It was suggested that the manufacturers should give this problem serious consideration as the coal industry, realizing under-
(Please Turn to Page 78)



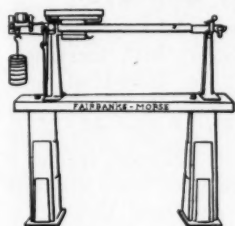
Truck Scales



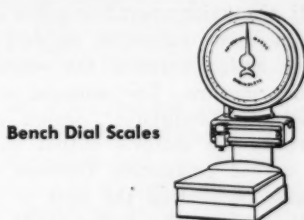
Printomatic Dial Scales



Over-and-Under Scales



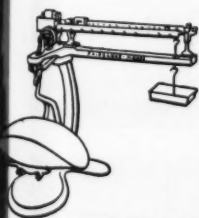
Type Registering Beam Scales



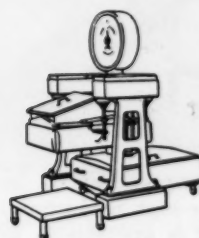
Bench Dial Scales



Portable Dial Scales



Counting Scales



Weigh Can Scales

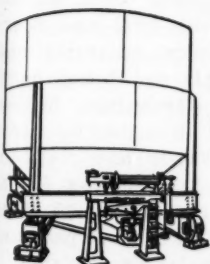
***Speeds
your weigh!***



FAIRBANKS-MORSE,

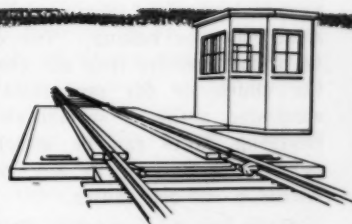
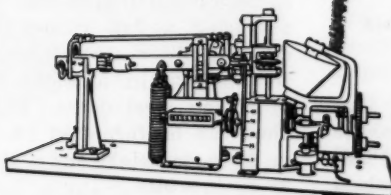
a name worth remembering

SCALES • DIESEL LOCOMOTIVES AND ENGINES
• ELECTRICAL MACHINERY • PUMPS • HOME
WATER SERVICE EQUIPMENT • RAIL CARS •
FARM MACHINERY • MAGNETOS



Hopper Scales

Belt Conveyor Scales



Railroad Track Scales

Fairbanks, Morse & Co., 600 South Michigan Avenue, Chicago 5, Illinois

DA

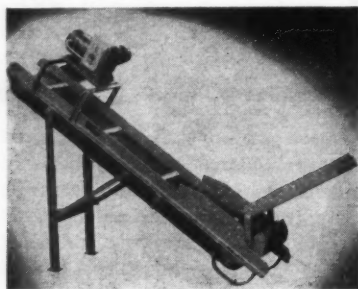
NEW

Products

FOR FURTHER INFORMATION USE READERS' SERVICE

Semi-Stationary Conveyor

May-Fran Engineering, Inc., announces its Series "S" conveyor which is designed primarily for permanent or semi-permanent installations and is used for handling small metal parts such as stampings, castings, borings, turnings and chips. It can be used as an auxiliary unit to a permanent



conveyor system to feed or discharge high production items. The model is available in five lengths, incorporates telescopic legs which permit the discharge end to be raised or lowered and comes with 12, 18 or 24 in. wide belts of neoprene-impregnated fabric or hinged steel conveyor belting. The conveyor has positive trap and charging chute, or for operations in congested areas, a special swivel charging chute can be attached, permitting feeding at any point within a 180-deg radius.

Circle 1 on Readers' Service Card

Magnetic Brake

A magnetic brake design that eliminates all levers and linkage found in conventional units has been developed by the Reuland Electric Co. The model contains

only six major operating parts and has a direct, automatic set and release action between the solenoid and armature. The solenoid is of one-piece "doughnut" design and permits the motor's output shaft to extend completely through the brake, permitting the user to use both ends of the motor shaft for powering two pieces of equipment when required. The brake is installed with the shaft extending through the brake for hook-up to the load.

Circle 2 on Readers' Service Card

Industrial Storage Battery

The Electric Storage Battery Co. announces the Exide-Ironclad model for railway, motive power and other heavy-duty service, designed to reduce the two leading causes of curtailed battery life; corrosion of the positive-plate grid and loss of active material from the positive plate. A new alloy, silvium, is used in the grid to reduce corrosion and the active material retains its strength through the use of permanently sealed tubes in the grid structure which are non-corroding and unaffected by electrolytic action.

Circle 3 on Readers' Service Card

Rolling Door with Window

The Cornell Iron Works, Inc., is producing a full vision window, constructed of interlocking slat sections four in. in width, for use in rolling steel doors. The windows can be furnished 12, 16, 20 or 24 in. in height and a standard 20 in. in width.

Circle 4 on Readers' Service Card

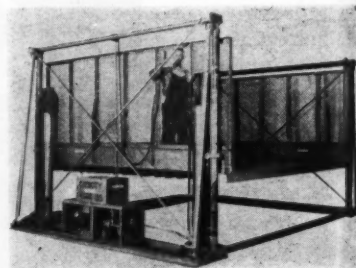
Gravity Conveyor

A new model Rapid-Wheel gravity conveyor, with increased load capacity for industrial use, has been announced by The Rapids-Standard Co., Inc. The model has 3½ in. deep channel frames of 12-gauge steel for extra strength and rigidity and each lane of wheels is reinforced with a steel center band which supports the axles at the point of greatest strain. It is manufactured in five and 10 ft sections, 12 and 18 in. wide, and in 45 and 90 deg curves.

Circle 5 on Readers' Service Card

Electraulic Lifters

The Service Caster and Truck Corp. announces a new series of electraulic Four Post lifters to



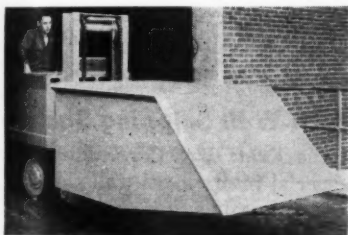
facilitate heavy loading of trucks and railway cars, with adjustments to level-to-level and floor-to-floor movement of trucks and skids, materials and heavy parts in plants or warehouses. Models are available in capacities from 2,000 to 12,000 lb and platform sizes from 5 x 5 to 12 x 12 ft. Lifts range from 5 ft to 17 ft at speeds from 8 ft to 23 ft per min.

Circle 6 on Readers' Service Card

CARD

Hopper for Electric Truck

A 4,000-lb capacity, high-lift platform truck, equipped with an 80 cu ft end-dump hopper, is available from The Yale & Towne Mfg. Co., Philadelphia Division. It is designed for handling bulky loads of loose material such as sand, gravel, aggregate, sawdust, waste, metal chips, ashes and scrap. The hopper can be tilted downward to



scoop up loads, or it can be loaded from overhead. The truck is a standard 4,000-lb electric high-lift platform model with a specially shortened platform to accommodate the hopper.

Circle 7 on Readers' Service Card

Protects Ignition Systems

A transparent, plastic coating for ignition systems which seals out moisture and prevents rust, corrosion and battery current leakage is introduced by Krylon, Inc. The coating is applied from an aerosol container after thorough cleaning of spark plugs, lead-in wiring, distributor and all parts of the ignition system with a good cleanser — gasoline not recommended.

Circle 8 on Readers' Service Card

Wheeled Utilities Rack

The Palmer-Shile Co. has designed a utilities rack for handling parts or small items in process of production or assembly. The rack

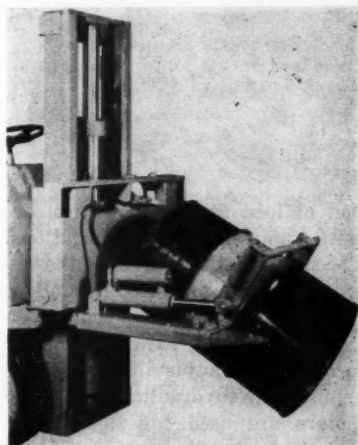


is all steel, welded construction, has two swivel casters and two rigid casters and can be used at machines or as materials conveyor. The model is 24 in. wide, 50 in. high, 48 in. long, has a 12 in. clearance between shelves and can be designed according to plant requirements or size adjustments.

Circle 9 on Readers' Service Card

Hydraulic Drum Up-Ender

A hydraulic drum up-ender attachment which permits fork truck operators to pick up, transport, stack and empty heavy drums without leaving their seat, has been developed by Baker-Raulang Co. Drums can be rotated 90 deg for vertical or horizontal stacking, or



tilted 45 deg below horizontal for emptying at any height within the lift range. De-mounting is done by

removing two lock pins, unsnapping one detachable hydraulic hose coupling and sliding the up-ender off the forks. Both the model's four-purpose carriage and the hydraulic up-ender can be mounted on 2,000, 3,000 and 4,000 lb Baker fork trucks. The up-ender weighs about 110 lb and has a clamping pressure of 1,000 lb.

Circle 10 on Readers' Service Card

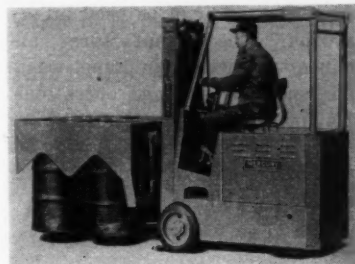
Adjustable Racks

Adjustable pallet and skid racks, introduced by Market Forge Co., are designed to utilize existing storage space and increase efficiency in moving stock. The units may be arranged in tiers or be adjusted to space or commodity requirements.

Circle 11 on Readers' Service Card

Drum-Carrying Lift Truck

The Mercury Mfg. Co. announces a drum-carrying lift truck, effected by mounting a drum carrier on a 3,000 lb capacity Jeep truck. The four drum capacity carrier attach-



ment weighs 750 lb and is 54 in. long and 51 in. wide. The front of the carrier may be used to push drums into pick-up positions, eliminating prolonged spotting of the truck. Gripping shoes are equipped with non-slip lining, so that the weight of drums and the gravity wedging action of gripping shoes insures a positive grip. The manufacturer claims more complete utilization of available plant storage space with the unit because compactness of unit loads permits closer spacing and double and triple tiering.

Circle 12 on Readers' Service Card

Portable Tape Machine

A portable tape machine, produced by Mid-States Gummed

DA NEW Products

Continued from previous page

Paper Co., measures, moistens, applies and cuts tape in one operation and enables sealing and re-

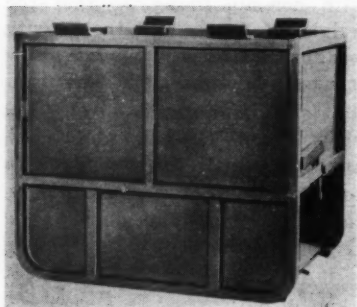


sealing of cartons regardless of their size or location. The model is equipped with a non-spilling water tank and can be used in any position. The manufacturer announces reduction in tape waste and speeded sealing operations. Sole maintenance operations are refilling water tank, rinsing a moistening sponge and replacing worn cutter blades.

Circle 13 on Readers' Service Card

Drop-Bottom Container

The Roura Iron Works, Inc. has designed this drop-bottom container for use in handling parts and for storage purposes. The drop-bottom permits gravity flow



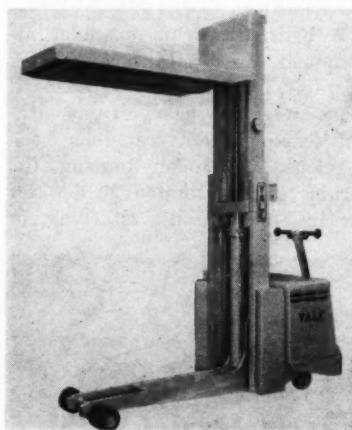
to bring parts directly to the operator's work point. The containers are of 12 gauge steel construction,

reinforced with two in. channels and electric welding. The drop-bottom opening is 13 in. high and 31½ in. wide; while the box illustrated is 36 in. wide, 48 in. long and 39 in. high.

Circle 14 on Readers' Service Card

High-Lift Platform Truck

A telescopic high-lift platform Worksaver, a powered hand truck designed for high stacking of skids and skid bins, is available from The Yale & Towne Mfg. Co., Philadelphia Division. The 4,000-lb capacity model has a lowered platform height of 6½ in. and will lift loads up to as high as 126½ in. The unit has an articulated frame that permits continuous floor con-

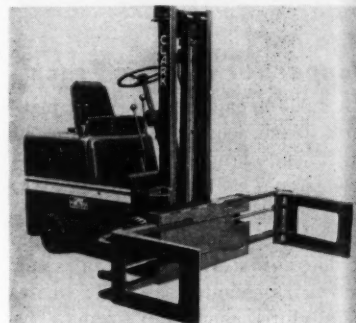


tact of load and drive wheels, despite ramps and floor variations. The hoist pushbutton is on the operator's control handle; a hand or foot-operated lowering control on the front of the battery compartment permits adjustable-speed lowering; twin hydraulic pumps and motors are used for fast lifting and the hydraulic system includes a relief valve to protect the equipment from overloads.

Circle 15 on Readers' Service Card

"Wide-Spread" Bale Clamp

The Clark Cotton Clamp for use on Clark Equipment Co. electric and gas-powered 2,000 lb fork lift trucks in handling bales and similar items, has been redesigned to incorporate several improvements and is re-named the "Wide-Spread" Clamp. The inside diameter of the clamping cylinder has been increased to 2½ in. to permit clamp operation under lower proportionate working pressures, with a top limit of 1,000 lb, promoting increased efficiency and longer life



of the mechanism. The maximum clamp-arm spread has been increased to 69 in., but over-all assembly width remains at 40 in.

Circle 16 on Readers' Service Card

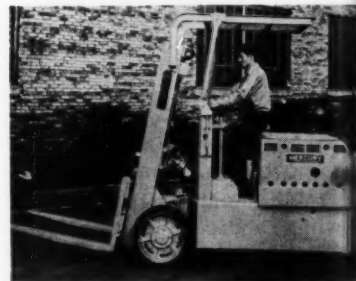
Multi-Wall Shipping Sack

The Kraft Bag Corp. announces a special insert multi-wall shipping sack primarily suited for fertilizers and chemical products. The bag is designed to provide better valve closure and reduce sifting as well as reduce bag costs.

Circle 17 on Readers' Service Card

Lift-Truck Safety Canopy

The Mercury Mfg. Co. announces an overhead guard for installation on both the Yak and



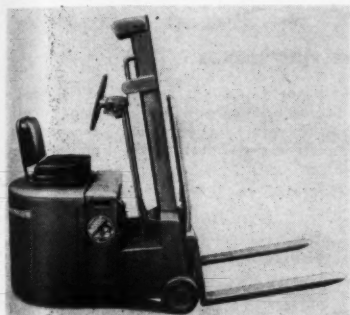
Yank model lift trucks. The canopy has an overall installed height of 95 in., reducible to 91 in. The

overhead guard is pivotally attached to the lifting mast and also pivotally supported from the lift truck dash. This method of securing permits the guard to remain horizontal, regardless of the degree of the lifting-mast tilt. Because of the guard's construction, top-removal of batteries can be accomplished easily.

Circle 18 on Readers' Service Card

Lightweight Fork Truck

Planned for operations in cramped quarters or for areas with limited floor load capacities, this lightweight electric fork truck

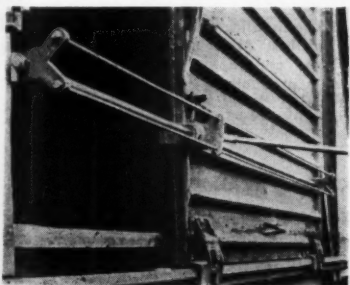


from Lewis-Shepard Products Inc. is designed to make electric fork truck installations possible where they couldn't be considered previously.

Circle 19 on Readers' Service Card

Freight Car Door Opener

Penco Engineering Co. introduces a mechanical device, to easily and safely open and close "balky" freight car doors, which



exerts a 4,000 lb pressure in the direct line with the opening and closing channel of all types of freight box car doors. The unit, designed to eliminate accidents, loss of labor time, freight car and merchandise damages, meets Safety Appliance laws and ICC Rules of Safety.

Circle 20 on Readers' Service Card

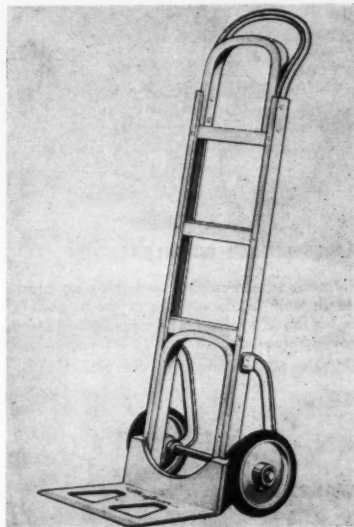
Welder's Truck

This Palmer-Shile Co. welder's truck, designed to accommodate one gas and one air cylinder, is directed to industrial users of acetylene welding equipment. Each cylinder is cradled in its individual niche, preventing the parts from rolling or turning when the truck moves. The truck is 48 in. high, 29 in. wide and its metal wheels measure 24 x 2 in.

Circle 21 on Readers' Service Card

Magnesium Hand Truck

Manufacture of a magnesium hand truck, equipped with stair climbers, has been announced by Magline, Inc. The model weighs 16 lb, and has an officially rated load capacity of 450 lb. The manufacturer claims longer service life



and lower maintenance costs through the use of mechanically joined standard parts and assemblies and ease of operation through engineered weight distribution.

Circle 22 on Readers' Service Card

All-Steel Drawer Unit

The Equipito Division of Aurora Equipment Co. announces an 18-drawer steel cabinet as an addition to its line of steel shelving, parts bins, work benches, stock carts and storage units. The overall size of the cabinet is 18 x 14 x 34 in. wide.

Circle 23 on Readers' Service Card

Portable Scrap Box

A portable scrap box of corrugated steel construction and equipped with a yoke for handling by crane or hoist, has been announced by Equipment Mfg. Inc., for simplified movement of scrap within the plant. The standard size box is 36 x 42 x 30 in. (deep) with a capacity of 32 cu ft. Nest-



ing caps on the feet make tiering possible and casters are optional to ease mobility around machines where other equipment cannot be used.

Circle 24 on Readers' Service Card

Adjustable Pallet Rack

An adjustable pallet rack, introduced by the Berger Mfg. Division of Republic Steel Corp., has maximum dimensions of 60 x 60 x 120 in. and can be furnished with extra heavy tubular supports or solid shelves. The upright members are notched on six in. centers from 14

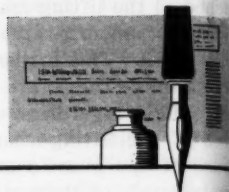


to 92 in. and it takes 30 seconds for one man to move a shelf up or down within the rack, which is designed to carry up to 3,000 lb per shelf.

Circle 25 on Readers' Service Card

FREE

Literature



AVAILABLE STEEL FLOORING

The Great Lakes Steel Corp. has issued an eight-page information bulletin on nailable steel flooring for railroad cars, designed to withstand the rigors of magnet and crane loading and hold nailed wood blocks securely.

Circle 30 on Readers' Service Card

MOBILE RADIO BROCHURE

A brochure outlining the uses of two-way mobile radio equipment for materials handling, plant maintenance, plant protection and other industrial applications has been issued by the RCA Engineering Products Co.

Circle 31 on Readers' Service Card

STORAGE RACK BULLETIN

The Barrett-Cravens Co. had released Bulletin 5221, with information on steel storage racks for drums, barrels, crates, bins, skids and pallets. All above applications are illustrated with installation views.

Circle 32 on Readers' Service Card

CARTON "STYLE-GUIDE"

A 28-page "Style Guide" detailing construction designs for folding cartons has been issued by Robert Gair Co., Inc. Information is included on use of machine-filled and machine-formed cartons.

Circle 33 on Readers' Service Card

BIN-LEVEL CONTROL

Two additions to its line of "Tellevel" automatic, bin-level control switches are announced in a bulletin from Stephens-Adamson Mfg. Co. Tellevels are designed so that a rising, or falling, level of material is detected automatically.

Circle 34 on Readers' Service Card

BUCKETS FOR LOADING

The Blaw-Knox Co. has published a 44-page Bulletin #2392 for users of overhead or bridge type cranes with four-rope bucket trolleys. There are illustrations of bulk materials handling, for coal, ores and chemicals.

Circle 35 on Readers' Service Card

MH EQUIPMENT CATALOG

The American Hoist & Derrick Co. has published a new general catalog, showing the company's line of revolver cranes, locomotive cranes, hoists, material elevators, car pullers and wire rope clips.

Circle 36 on Readers' Service Card

MATERIALS HANDLING AID

Kwik-Mix Co. has issued a four-page bulletin showing the varied performance of the company's Moto-Bug in construction, shipping, building and manufacturing jobs.

Circle 37 on Readers' Service Card

STEEL SHOP EQUIPMENT

Purcell Enterprises Inc. announces its four-page bulletin illustrating the company line of equipment, including utility tables, utility desks and drum lifters.

Circle 38 on Readers' Service Card

"ACROSS THE DOCK . . ."

The Hyster Co. has released its latest brochure, "Across the Dock—The Longest Haul in Motor Freight," prepared especially for the motor freight industry. It is the result of extensive research and study of handling operations in the industry.

Circle 39 on Readers' Service Card

PALLET BINDER BOOKLET

Information on receiving and shipping products in unit load, with or without pallets, can be found in this four-page pallet binder booklet released by Roger L. Toffolon.

Circle 40 on Readers' Service Card

FILMS

"SERVES YOU RIGHT"

A new 15-min motion picture, "Serves You Right," released by the Clark Equipment Co., shows how a number of the nation's leading industrial plants have effected new efficiency and economy by using fork-lift trucks and towing tractors in plant maintenance operations.

Circle 81 on Readers' Service Card

PALLET LOADING LESSON

The Lamson Corp. has released a 15-min film describing the ideal pallet loading operation, entitled "The Automatic Pallet Loader."

Circle 82 on Readers' Service Card

"NOT TOO HOT TO HANDLE"

Walter Kidde & Co. has released its new film, "Not Too Hot to Handle," describing fire extinguishing equipment, for industrial distribution.

Circle 83 on Readers' Service Card

ROOF PROTECTION FOLDERS

Two folders: "Specifications, Hallemitte Cold Process Built-Up Roofs," and "Homogenized Waterproofing for Low-Cost Roof Protection" are available through the Hallemitte Mfg. Co.

Circle 41 on Readers' Service Card

"HELPING HANDS"

The Oliver Corp. has released a 16-page, two-color booklet entitled "Helping Hands for Your Material Handling" showing its complete line of industrial wheel and crawler tractors.

Circle 42 on Readers' Service Card

MH PUBLICATION

The Acme Steel Co. has made available to industry its quarterly publication, "Confab," supplying information on materials handling and wire stitching techniques.

Circle 43 on Readers' Service Card

MAINTENANCE BOOKLET

United Laboratories, Inc., has issued a four-page bulletin describing special coatings for plant maintenance, covering such problems as skid-proofing, rust prevention, weather-proofing and protection against acids.

Circle 44 on Readers' Service Card

CANVAS FOR INDUSTRIAL USE

C. R. Daniels, Inc., has released a new booklet entitled "New Horizons" which gives a pictorial and factual account of the company's production of canvas and canvas products.

Circle 45 on Readers' Service Card

SCALES FOR INDUSTRY

The Exact Weight Scale Co. announces two bulletins on automatic fan dial scales featuring five types and 23 models for unknown or catch weighing, and platform scales with 300 lb capacity.

Circle 46 on Readers' Service Card

INDUSTRIAL TIRE HANDBOOK

The Monarch Rubber Co. has issued a catalog on its line of industrial tires, covering all types of solid and cushion tires used on materials handling vehicles. One section records equipment according to manufacturer and model numbers and recommends the proper type and size of tires.

Circle 47 on Readers' Service Card

FRUEHAUF'S 500

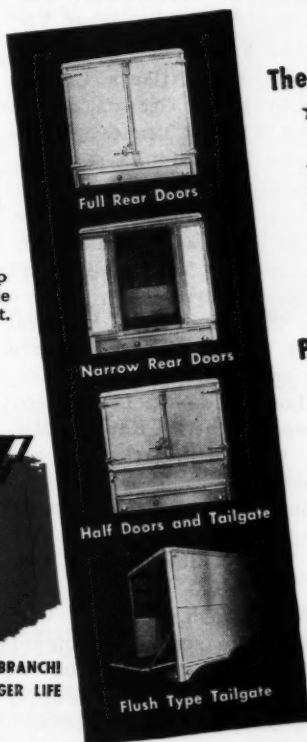


YES — a choice of more than 500 standard truck body options, and many more specials. Precision engineered and ready for *immediate assembly* at your nearest Fruehauf Branch — to your *exact specifications*. You get custom-fitted truck bodies at production-line prices.

ASK for Fruehauf's free Model Make-Up Kit. It's easy to assemble your scale model before choosing the body you want.

FRUEHAUF
"UNIT-BUILT"
Truck Bodies

UNIT-BUILT FOR IMMEDIATE ASSEMBLY AT YOUR FRUEHAUF BRANCH!
UNIT-BUILT FOR BIGGER PAYLOADS, LOW UPKEEP, LONGER LIFE



The Choices You Get in Fruehauf's 500

- ★ Straight or wheelhousing all-steel frames
- ★ All popular body lengths of each type
- ★ Closed or open top and back
- ★ All standard and special door locations and sizes
- ★ Complete variety of tailgates and steps

Plus These Added Fruehauf Advantages

- ★ All-steel roof with coin-pressed seams
- ★ Welded, light-weight, flush-swinging doors
- ★ Fast, inexpensive repairs on these stock assemblies
- ★ Over 80 convenient Factory Branches coast to coast!

Truck Body Division
FRUEHAUF TRAILER COMPANY
Detroit 32, Michigan

... Public Merchandise Warehouses

(Continued from Page 23)

equipment, gasoline, lubricants, and communications.

It was also recommended that additional buildings, taken over by the government for warehousing, be operated by the local warehouse association or by an individual warehouse.

Four days later, on September 29, 1950, these recommendations were approved by the Munitions Board Storage and Handling Industry Advisory Committee. They were acted upon by the Munitions Board on December 21, 1950.

The proposals went beyond the power and authority of the Munitions Board in asking for one agency for all government departments. However, the Munitions Board did set up one agency for all the military services under its jurisdiction. Extension to all branches of the federal government lies in the power of the Defense Transport Administration, and the Task Committee has urged Harold Osgood, of DTA, that all branches be unified under a single agency.

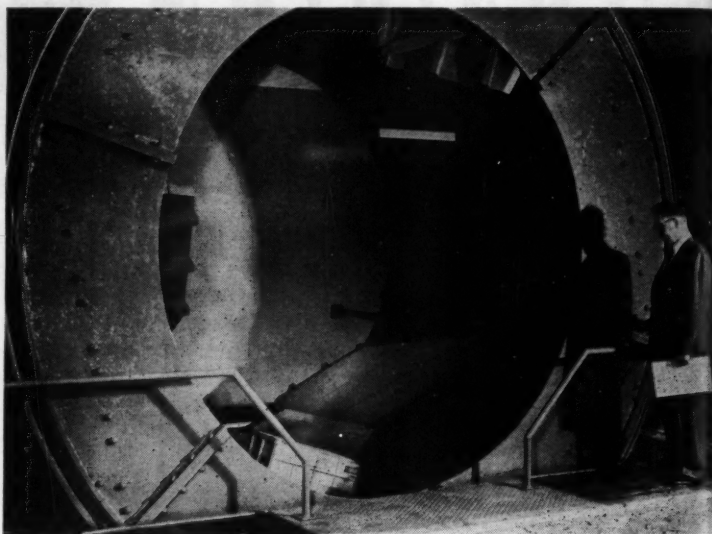
The Munitions Board has set up a Commercial Warehouse Service Officer (CWSO) in Washington, D. C., which acts as the single agency to receive requests for warehouse space from the Army, Navy, and Air Force and to allocate the available space among the services. Under the CWSO, there are Commercial Warehouse Field Offices (CWFO) which operate in selected localities surveying facilities, making contracts, allocating tonnage to specific warehouses, and working daily with local Defense Warehousemen's Associations or individual houses.

Field Offices

The initial commercial field offices, existing and contemplated, are:

Boston, Mass.—U. S. Naval Shipyard (Supply Department) to serve Maine, New Hampshire, Vermont, Massachusetts, Rhode Island and Connecticut.

New York, N. Y.—U. S. Naval Shipyard (Supply Department) to serve New York and New Jersey.



This 14-ft revolving drum tests wirebound boxes at the General Box Co., Des Plaines, Ill., to determine their ability to deliver merchandise safely. The drum weighs about 27,000 lb and is

set in a pit to facilitate loading and unloading. It will tumble packages measuring up to six ft and weighing up to 800 lb. At right, Don Elston, manager of the research division.

New Cumberland, Pa.—New Cumberland Depot to serve Pennsylvania, Maryland, Delaware and District of Columbia.

Norfolk, Va.—Naval Supply Center to serve Virginia, West Virginia and North Carolina.

Atlanta, Ga.—Atlanta General Depot to serve Georgia, South Carolina, Florida, Tennessee, Alabama and Mississippi.

Cleveland, Ohio—Bureau of Supplies and Accounts, Field Office, U. S. Navy to serve Ohio, Kentucky, Indiana, Michigan (except upper peninsula).

New Orleans, La.—U. S. Naval District Supply Office to serve Texas and Louisiana.

St. Louis, Mo.—St. Louis Medical Depot to serve Kansas, Missouri, Oklahoma, Arkansas and Nebraska.

Ogden, Utah—Utah General Depot to serve New Mexico, Arizona, Utah, Colorado and Wyoming.

Auburn, Wash.—Auburn General Depot to serve Washington, Oregon, Idaho and Montana.

Oakland, Cal.—Naval Supply Depot, California and Nevada.

Once a lot of goods is placed in store by the CWFO, the warehouse sends the receipt to the branch of the armed services owning the property. The warehouseman receives his shipping instructions from the possessor of the receipt. This is the only contact with various branches; all other dealings are with one man, the CWFO.

Two Types of Contracts

After preparing and submitting its basic recommendations, the Task Committee applied itself to reviewing and commenting on two forms of warehouse contract; the contract with an individual warehouse and the contract with a Defense Warehousemen's Association. Attached to both, as an annex, was a Tariff of Charges. This part of the work was accomplished at meetings in Chicago, Boston and Washington.

The Task Committee confined itself to the practical aspects of these contracts and, understandably, made no attempt to cover the legal aspects. It was felt that the contracts should receive legal

(Please Turn to Page 50)

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... Public Merchandise Warehouses

(Continued from Page 48)

review by local attorneys familiar with state legislation as well as federal.

No account of this undertaking would be complete without mention of the great cooperation and high order of talent brought to the meetings by the government representatives. Col. Mearls, Vincent Caputo, Henry Pellegrino, J. R. Harkins, and H. W. Tolliver were not only experts on storage problems but extremely resourceful in suggesting solutions to many obstacles and procedural tangles. Without their great contributions the task would have been immeasurably more difficult and would have consumed more time.

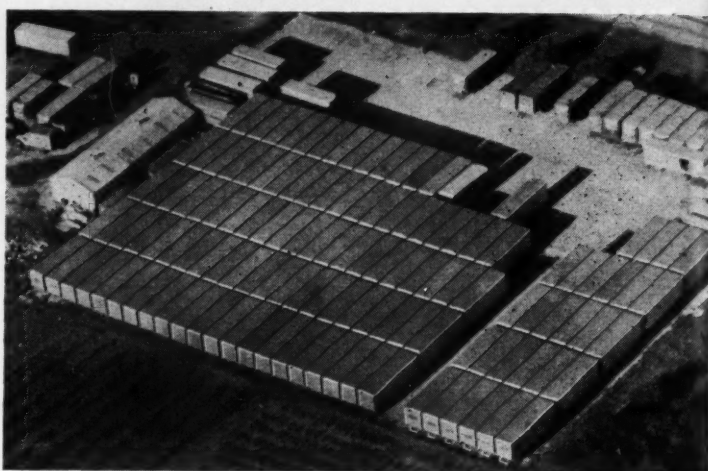
The individual warehouse contract, which is for use in localities in which no Defense Warehousemen's Association exists, endeavors to follow commercial practice insofar as practical and consistent with laws and regulations controlling government departments.

The fiscal rules of the federal establishment impose a more complicated procedure than is normal in business. Examples are: Invoices in quadruplicate, warehouse receipts in duplicate, and all must contain far more detail than usual. Much of this type of red tape was cut away by the Task Committee. Although some remains, it has, generally, statutory basis.

Complications

The group or Defense Warehousemen's Association contract presented more complications. This document is in three parts: The contract between the association and the government, the Defense Warehousemen's Association Agreement, and Tariff of Charges.

To obtain clearance by the Department of Justice, the draft was submitted to the Attorney General's office by the Department of Defense. Justice came back with some provisions which were highly objectionable. The Task Committee protested against certain restrictive items with the support of the members of the Munitions Board Staff. The Association contract was brought into harmony



Seen from a low flying airplane these closely packed Fruehauf trailers, each capable of carrying ten tons or more, resemble nothing so much as a stack of dominos. Note the accurate

alignment of the vehicles in parking. Picture was taken from the air over the Interstate Motor Freight Garage at Benton Harbor, Mich. There are more than 150 trailers in the picture.

with the Individual Warehouse contract in all its provisions which apply to both situations, especially in regard to the Tariff of Charges.

The Tariff of Charges in both contracts follows closely commercial practice. Both handling and storage charges are billed on a per package rate; which is based on a negotiated base rate per one hundred pounds, modified upwards through 15 density classes, as is common in warehouse rating tables. Standard minimum computing weights are applied on coo-

perage. The classification of commodities is reflected in a clause providing for exceptions to base contract rate for goods that are mussy, malodorous, fragile, attractive to vermin, and requiring special care in handling or storage. Accessorial charges for LCL and LTL, sorting, reporting marked weights, furnishing extra labor, recooperage, and bracing are to be paid for rates negotiated locally.

In June of 1951, there was a meeting in St. Louis, Mo., at which the members of the Commercial Warehouse Test Committee met with the Munitions Board and Army-Navy-Air Force representatives. Commercial Warehouse

Field Officers, selected from the three armed forces, attended this meeting for indoctrination, together with officers from the office of the Quartermaster General in the Pentagon, who were to man the Commercial Warehouse Service Office. At this meeting, it was learned that the individual warehouse contract was finally approved, but that the amended warehouse group association contract had met serious objection from the anti-trust division of the Department of Justice.

Refrigerated Space

Fortunately, the armed services had immediate need of refrigerated warehouse space only, and that section of the industry operated on individual contracts only. It wasn't until 1952 that the needs of the armed services for dry storage became apparent.

It is planned to have a meeting of the Industry Task Committee, the Commercial Warehouse Field Officers, the Commercial Warehouse Service Officers, and the Munitions Board planners in June, 1952, at Washington, to iron out any kinks that have developed in the operation of the original plan.

(Resume Reading on Page 24)

Hard-Top Floors . . .

(Continued from Page 26)

agement has decided that any additional first cost will be more than compensated by a subsequent, reduced annual floor maintenance.

For instance, on the basis of their West Coast experience with this type of floor, Safeway Stores, Inc., recently specified that 700,000 sq. ft. of the floor be laid in their South Kearny (N. J.) warehouse, a modern structure in which the floor was called upon to take the abuse of constant incoming and outgoing food shipments on heavily loaded trailers hauled by electric mule trucks.

Non-dusting in a food handling center such as this is of primary importance, and is a characteristic of granolithic floors. Another industry where non-dusting floors are mandatory is precision metal working, a current example being a large eastern bearing manufacturer faced with almost exclusively close tolerance work. Excessive amounts of cutting oil and constant trucking of metal components are additional hazards which called for heavy-duty floor topping if early breakdown were to be prevented and low-cost annual maintenance achieved without loss of production.

When to specify a heavy-duty granolithic floor, as against the lower cost monolithic slab job, varies with the service conditions encountered in specific industries and in specific plants. However, it appears that in general the trend is toward the premium-type industrial floor, in order to achieve longer floor life under adverse conditions and to assure uninterrupted production.

Color and Other Factors

For the artistic-minded, or for purposes of safety markings, controlled flooring can be pre-colored. The proportion of coloring matter generally doesn't exceed seven per cent of the cement and only non-fading metallic oxides are used. Pre-coloring in any but four basic colors—red, brown, grey and green—presents additional problems, engineers say, so that coloring beyond the basic four is not practical.



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Hard-Top Floors

(Continued from Page 51)

The addition of abrasives presents no problem in a premium-type floor but here again, individual need determines the type. Emery, alumina oxide and silicon carbide are used most frequently. Emery, for example, is a tough abrasive which will last somewhat longer but does not have as high a non-skid quality as other types.

Premium flooring is unaffected by high temperature except under extreme conditions such as pouring molten metal on the floor surface. Floors for this type of use fall into a special category. Low temperature does not affect the premium floor.

Building for high temperatures is a more expensive proposition and the conditions under which the floor is to be used must be thoroughly analyzed before the type of floor is decided upon.

Resurfacing Old Floors

Old floors can be resurfaced with granolithic topping, especially if the initial flooring—even if a monolithic type—provides a reasonably good underslab. The workability of the mix and the density of the topping when hard, produces a permanent bond.

The essentials in any good flooring are in the organization, skill and equipment used by the contractor in doing the job. Producing a good floor is not simply a matter of mixing stone and cement and pouring it into a mold. Making a top grade floor is as much of a science as building any part of the structure, and there is no substitute for experience, research and dependability. •

(Resume Reading on Page 27)

New MH Supplier

Flexoid Conveyor Co., a new division of Smith Power Transmission Co., Cleveland, has announced its entry into the materials handling field in the development, design, construction and installation of MH equipment.

The parent company has been in the field for 27 years through the design of chains, reducers, V-belts, pulleys and transmission items.

... Delivery Costs

(Continued from Page 32)

Customer Classification

Who are these small accounts? What kind of business are they in?

Have they any improvement prospects?

Chart 6 provides some answers to these questions. Nineteen per cent are grocery accounts. The remaining 81 per cent are institutional, confectionery and tobacco accounts.

It must be apparent by now that there are large opportunities here for savings, not only in delivery, but in sales, accounting, and collections. To effect these savings will require still more detailed customer analysis and the formulation by management of new policies concerning the type of customer they wish to serve, order sizes acceptable for free delivery, and promotion efforts designed to improve the number of large, steady customers. It may also develop that there is a sufficiently large group of specialized customers to justify a wagon-jobber type of delivery on a narrow line of specialties.

These decisions must be made before a sound recommendation on suitable vehicle types can be made.

When small customers are solicited and frequent delivery service is guaranteed, loading and routing problems can become very complicated. A similar situation can prevail with large accounts if they are over-served and the routing is unplanned.

Load Analysis

Chart 7 shows the load pattern for a single week—largely resulting from the small-order problem we have just reviewed. Note that the loads, 52 of them, range from less than 1,000 lb to more than 30,000 lb. This extreme variation makes it difficult, if not impossible, to standardize on a few vehicle types under penalty of grossly underloading or overloading.

Please bear in mind that there are valuable man-hours, as well

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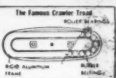
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... Delivery Costs

(Continued from Page 53)

as truck-hours, running against these 52 loads, whether the load is less than 10,000 lb, as nearly half of them were, or over 20,000 lb, as were only seven loads. Yes, seven men—seven trucks, were rolling with less than 160,000 lb.

From our previous report, you know that much of truck time and driver time is spent just getting positioned to make a drop; i. e., rolling time plus parking time. Now you have some measures of the larger variations in cost on large drops vs. small drops; namely, the 0.4 per cent delivery cost figure for the very large customer, the 1.8 per cent average for all of the remainder, and an indicated 7 per cent or more for the very small customer—these in a house which has a total gross margin of about eight per cent and an average delivery expense of 1.25 per cent.

Conclusions

We have reviewed these findings with the management of the Test-House, in an effort to sharpen up some conclusions for you which would not sound academic.

I think the most important conclusion is that the installation of an accurate delivery cost system, such as we recommended in our first report, does uncover large opportunities for savings; even in a house with an excellent overall showing on profits and expense ratios. The system did not require any extra people. It did not upset the organization. It has uncovered hidden losses, which the staff readily comprehended and are eagerly beginning to correct.

The analysis has confirmed what many wholesalers already know—that delivery cost figures of less than 0.5 per cent are attainable on very large orders in a compact trading area serviced by trailers and pallet-loaders.

It has confirmed what many of you have feared—that much small-order business now is handled at a loss.

The analysis gives promise that, once the time and cost figures are completely revealed on all types of order sizes, we should be able to design vehicle and handling methods which can substantially cut the present abnormal delivery cost on smaller orders. Then each type of business can be fairly assigned its true burden of delivery expense, and an election can be made of the kind of retailers on whom you will concentrate.

In our previous report, we forecast possible savings through efficient highway transport management of from 10 per cent to 30 per cent. We will take 20 per cent as an average just to show that, in this house, it would amount to \$30,000 or the net profit on, say, \$3,000,000 in new business. I think you will agree that \$3,000,000 is a business goal worthy of some very solid management interest. ●

(Resume Reading on Page 33)

Plant Expansion

Elwell-Parker Electric Co., Cleveland, Ohio, appointment of Conlon-Lightbody Co. as sales agents in the St. Louis district.

Pacific Intermountain Express, Washington, D. C., sales office moved to 1800 Wisconsin Ave., N. W.

Western Condensing Co., San Francisco, Calif., two new warehouses at Lima, Ohio.

Warner Electric Brake and Clutch Co., Beloit, Wis., named Wheel Service Co., St. Paul, Minn., as midwestern distributor.

General Electric Co., Electronics Division, new warehouse and office building in Chicago.

Gulf Oil Co., new canning, drumming and blending plant at Charleston, S. C.

Chicago, Rock Island & Pacific Railroad Co., new freight house at Armourdale, Kan.

General Service Administration, new warehouse in Chicago for storage of equipment and supplies for all federal agencies in the area.

Robert Gair Co., Brooklyn, N. Y., purchased American Coating Mills Division of Owens Illinois Glass Co., in Chicago.

American Shippers Inc., new offices in Chicago.

Port of New York Authority, two new cargo terminal buildings at Port Newark.

Georgia Ports Authority, two new state docks at Savannah.

Rock Island Lines, main line track relocation between Atlantic and Council Bluffs, Iowa.



Route your trucks the shortest way every trip. The time and gas used by your drivers looking for unknown streets, driving all around Robinson's barn to make deliveries, will buy a hundred maps like Hearne's Street Map of your city and county area.

Street names are in big, black type, and instantly spotted with Hearne's patented, automatic Street Finder. And every map is mechanically indexed.

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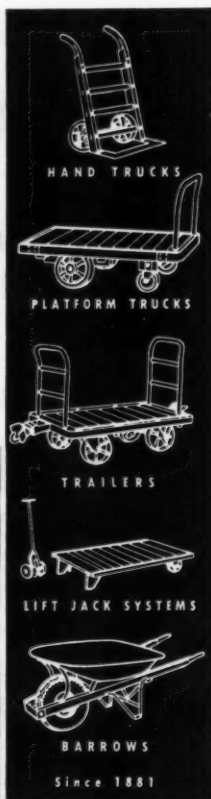


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... Industry Leaders

(Continued from Page 29)

trial executive that (1) it is simple to analyze a job and apply the right piece of equipment to the job and (2) the forthright MH equipment manufacturer will sell the right piece of equipment for a job, although it may be a less expensive item.

Know the Limitations

C. W. HENKLE of The Mercury Mfg. Co. presented his suggestions in a series of "do" and "don't" cautions. For example:

1. Know the advantages and limitations of several materials handling systems;

2. In purchasing new equipment, stick to the established standards of steering control, travel controls, power source size and capacity;

3. Don't expect too much from a single fork truck—the fork truck is for lifting unit loads, it has not been designed for prolonged horizontal movement;

4. The ideal system might be the fork truck for unit handling and the tractor trailer system for the horizontal movement; the fork truck should not be used on more than a 10 per cent grade, should not stack palletized goods too high because of possible toppling and should not be expected to supply high speed in-plant movement of materials.

Executive Support

J. R. SEBASTIAN of The Rapids Standard Co., Inc., pointed out that the industrial executive will perform satisfactorily in his MH responsibilities if he knows these two basic facts:

1. Materials handling should get top support and encouragement from the top executive—because it is a vital part of the distribution system, a source of greater productivity, a source of lowered costs and the channel for the upgrading of personnel;

2. There are two basic methods of handling that the executive should know in order to intelligently double-check the recommendations of his staff. The two basic methods of handling are (a) con-

tinuous movement of goods (as related to a conveyor movement) without return handling, and (b) unit or batch handling whereby the product is placed in a container or pallet for progressive movement, but return movement of the container or pallet is guaranteed.

Facility and Economy

EDGAR B. MILLER of Sterling Bolt Co. said that his company's analysis of the proposed materials handling expansion would involve (a) ease of operation, (b) the safety factors, and (c) the all-important economy resulting from expenditures of this nature. He stressed these points which should be determined before a new system could be established:

1. Knowledge of housekeeping and aisle space to accommodate the handling of equipment;
2. Knowledge of the load capacity, dimensions and weight of each piece of equipment to deter-

mine whether the building floor capacity would be sufficient;

3. Knowledge of the layout of the building to study possibilities of continuous movement or palletizing;

4. Knowledge of the maintenance problems involved;

5. Education, direction and control of the men operating the equipment so as to avoid abuse

Coordinate Equipment

J. M. GERRARD of A. J. Gerrard & Co. has outlined his remarks with this advice:

1. Determine whether the proposed equipment could be incorporated with existing materials handling equipment;

2. Determine whether the proposed system could be expanded to meet future contingencies—both as to production and space limitations;

3. Determine the feelings of labor in using the new equipment;

4. Determine the service policy of the supplier of equipment.

Make It Flexible

C. B. SMYTHE of The Thew C. Shovel Co. pointed out that the industrial executive should fit his system for the future as well as the present and plan on the flexibility of equipment to meet the more immediate problems. Mr. Smythe raised three major points:

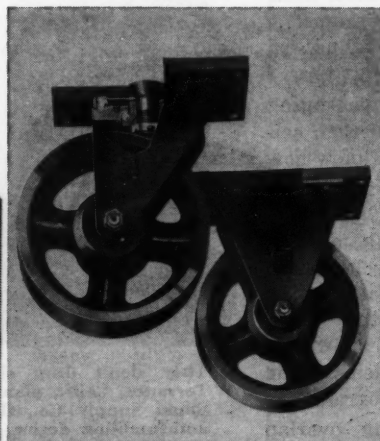
1. Does the proposed plan fit the present and future physical layout of the plant?

2. Has the quantity and type of material to be handled been given prime consideration? The volume of material to be handled and rate at which operation is to be conducted are important factors in determining capacity.

3. Does the plan include equipment of the types most suited to the work? The executive should know where the equipment is to be used, and whether equipment should be semi-permanent and portable or adapted to a permanent installation. •

(Resume Reading on Page 30)

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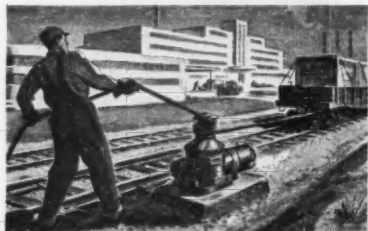
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TRADE MARK



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How They Overlap

(Continued from Page 33)

is fundamentally organized from the right base.

First, in the case of you traffic managers, you must have found out by now that no one is going to give you fool-proof answers. You are going to have to determine the answers for yourself in the sense of: your particular problem, in your particular industry, under the particular circumstances.

Your particular problem, now, is: Where can you agree; where should you not agree? What economy is irrefutable when asking for common carrier recognition of drastic changes? Where are the answers, how can you obtain them?

Reviewing, briefly, I have pointed out that the answers usually lie, deeply hidden, in the overlap areas; and that the answers usually are a matter of coordination and cooperation.

Study Overlap Activities

Since the majority of my experience has been in the materials handling area, let me give you the formula we found necessary for overall materials handling, transportation and packaging activities.

1. Materials handling overlap with traffic.
Get together with traffic authorities and study their science, their job know-how status, their problems, their costs, and their programs.
2. Materials handling overlap with packaging.
Get together with packaging engineers and study their science, their job know-how status, their problems, their costs, and their programs.
3. Materials handling overlap with production scheduling.
Get together with scheduling authorities and study their science, their job know-how status, their problems, their costs and their programs.
4. Materials handling overlap with material control.
Get together with material control authorities and study their science, their job know-

how status, their problems, their costs and their program.

And so on, with all overlap areas!

Knowledge Key to Success

There is no substitute for a conclusive and comprehensive knowledge of your job.

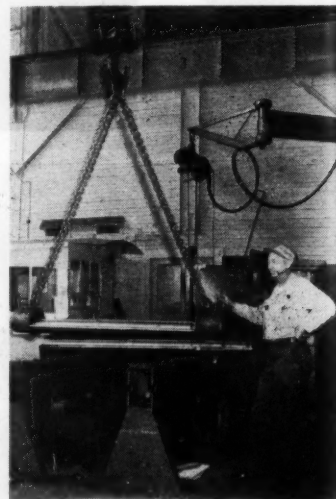
Too many of us are spending too much time looking for an easy way out. We put too little stress on the intensive study of our jobs, and too much on the desire for someone else to provide with a fool-proof answer to our particular and peculiar problem.

Too many of us have progressed to our present positions on the basis of years of experience. To be brutally frank, we do not have any other reason for our being here.

We have been pretty good in the specific sciences of handling, traffic or packaging, but we are sunk when we try to resolve the overlap areas.

Yet, in the resolvment of the overlap areas, lies our opportunity to progress to positions of more responsibility and service.

(Resume Reading on Page 34)



They don't drop shafts at the Torrance, Calif., plant of The National Supply Co., thanks to the anti-fumbling device shown above. A short piece of pipe, capped on one end and with welded hook and handle, is placed over each end of a shaft prior to lifting. The open end of the pipe is flared to make positioning easier.

Army Ordnance Develops

(Continued from Page 27)

metal is fed from a reel under the machine bed, in this operation, and is guided up and over the back and top of the carton.

The operator then guides the band down and under the front side of the box to a gripper which automatically pulls the band taut, crimp locks it, and cuts it off. A single unit saves the labor time previously allotted to four men, making a total labor saving of 20 men with five machines operating at the arsenal.

Barge Operation

A further materials handling development at the arsenal involves the use of fork lift trucks for loading and unloading barges. Formerly, large cranes were used for the operation.

Now, the crane is used to lower a lift truck into the vessel being unloaded and is not used again until the final stages of topping off the load when working space becomes too small for the lift truck to maneuver.

A fork truck on the dock moves a palletized load onto a hinged loading plate, jutting out about three and a half ft from the dock. The second lift truck, operating in the hold of the barge, picks up the loading plate and stacks it in position. Unloading is merely the same operation in reverse order.

Eight barges can be loaded during a single operation along the 2500 ft pier. The fork lift loading is considerably faster, requiring about half the time used by the crane, and is much cheaper.

372 Pieces of Equipment

Emphasis on materials handling equipment is apparent throughout the operation at the California arsenal. There is a total of 372 pieces of equipment; including lift trucks, cranes, conveyors, hoists and similar MH items. Every possible arsenal operation is palletized.

The principal activities at the arsenal are maintenance and rebuilding of combat and technical vehicles, artillery and small arms, fire control equipment, and prepara-

tion of vehicles and parts for shipment to the field forces in the Far East.

In addition, many vehicles are shipped to allied nations under the Mutual Defense Aid Pact. Daily shipments from the arsenal average about 300 tons.

Some 120,000 line items are stocked in the arsenal. About 102,000 of this figure is represented by "binned" items. The balance, or 18,000 items, is comprised of larger equipment up to the size of 45-ton tanks. Enough lumber is used for crating in a single month to build 100 six-room frame dwellings.

With the armed forces increasing the flow of armaments and materials to overseas destinations, the operation at the Benicia, Calif., arsenal has become a large-scale lesson in modern materials handling.

(Resume Reading on Page 28)

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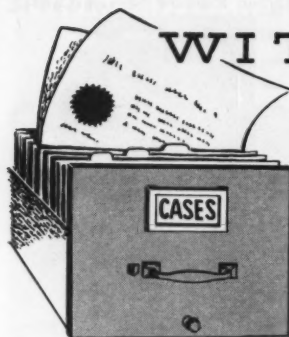
Write for details on the Model "D" and Tying Wire combination.

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WITHIN THE LAW

By Leo T. Parker

Legal Consultant, Distribution Age

DISTRIBUTION & MARKETING

What is the legal weight of a printed clause in a contract when delivery is delayed?

Recently a reader wrote an interesting letter in part, as follows: "We have an expensive law suit to defend and perhaps you can help us to win it. What is the legal weight of a printed clause in a contract? Due to circumstances beyond our control we could not deliver certain merchandise on the date written in our printed sale contract. The purchaser is suing us for damages. We claim that we are not liable because in our printed contract form there is this clause: 'It is understood that we, the sellers, are not liable in damages, or otherwise, for failure to deliver the subject of this sale contract if the delay in making delivery is caused by events beyond our control.' Can we win this suit, or do you think we should compromise and pay the purchaser some damages?"

The writer's advice to this seller was: Compromise the case, and avoid heavy damages. This is so because the seller clearly specified a penwritten delivery date in the body of the contract. And since the higher courts consistently hold that a seller must fulfill a written or typewritten clause although a printed clause is contradictory, this seller is liable.

Contract clauses priorities fall in this order: (1) pen written, (2) typewritten, (3) printed.

First, let me explain that the higher courts agree that a printed statement on a contract, order form, or letter head is not valid or effective if the printed condition is contradictory to typewritten or pen written clauses. Stating the law in another way, the courts hold that contract clauses have priority, as follows: (1) pen written; (2) typewritten; (3) printed.

For example, in the leading higher court case of *Agusta v. Minto Co.*, 64 S. E. 553, the testimony showed facts, as follows: A seller's letter head contained a printed statement to the effect that the seller would not be responsible for delays in delivering merchandise sold to the purchaser "caused by strikes, accidents and other delays beyond our control."

In the main body of the typewritten letter the seller promised delivery on February 1st.

In subsequent litigation the higher court held the seller liable in heavy damages for failing to make delivery before February 1st, although due to labor trouble the seller was delayed in delivering the equipment until after February 1st. This court said:

"If printed matter forms a part of the contract then it must yield to written terms inconsistent with the printed words."

In other words, typewritten clauses have priority over printed clauses.

Also, see *Summers, Hibbard*, 38 N. E. 899. Here at the top of a letterhead was a printed line, as follows: "All sales subject to strikes and accidents."

This court held that this printed line did not relieve the seller from damages for failure to deliver merchandise on the date agreed in the body of the typewritten letter. This court said:

"The printed words were not in the body of the letter or referred thereto."

According to this higher court decision if a printed clause is referred to in the pen written or typewritten letter, such printed clause is equal in priority and importance to the pen-written or typewritten part of the contract.

Typewritten clauses supercede printed clauses; pen written supercede typewritten.

As above explained, pen or hand written stipulations or clauses have priority and importance over typewritten or printed clauses in a contract, letterhead or other instrument.

For example, in *Baum*, 114 Pac. (2d) 360, it was shown that a sale contract was partly printed and partly typewritten. Also, pen written stipulations were inserted between the printed lines. This court held:

"Where the correct interpretation of such a contract is in doubt the interlineations in pen control as against the printed and typewritten portions of the agreement."

Also, see *Barnes*, 175 N. W. (2d) 495. This court held that where a contract is partly written and partly printed, the writing always controls and indicates the intentions of the contracting parties.

And again in *Kern v. Kelner*, 27 N. W. (2d) 567, the higher court held

that under all circumstances the typewritten words in a sale contract shall prevail over printed words which contradict the typewritten words. Of course, if the printed and typewritten words or clauses do not contradict each other, both the buyer and seller are obligated by both the printed and typewritten clauses (See *Wirtz*, 73 N. E. (2d) 122).

WAREHOUSING

Warehouseman liable for late or unaccepted goods if he knows unloading has taken place before closing.

Recently a warehouseman asked this legal question: "One night a customer unloaded merchandise on our platform. We did not accept the shipment and that night it was stolen from our platform. Are we liable? The customer's lawyer claims that always before we took possession of merchandise which this customer unloaded on the platform and therefore we are liable by implication. Is this so?"

This answer is yes. The warehouseman is liable if he knew the merchandise was unloaded on the platform. Modern higher courts consistently hold that a warehouseman who has not accepted legal custody of goods for storage cannot be held liable for loss or injury to such goods. However, a leading higher court held that circumstances may exist under which a court will imply that a warehouseman has legal custody of goods.

For instance, in *Galveston v. American*, 36 S. W. (2d) 985, it was shown that a shipment of merchandise was destroyed by fire while on a dock owned by a warehouse company. The testimony disclosed that a steamship company had deposited the goods on the dock, but that the warehouse company had not actually accepted delivery of the goods.

However, further testimony disclosed that the steamship company had that day unloaded other shipments on the same dock and that during the day all of these shipments, except the destroyed shipment, were taken possession of by the warehouse company. In view of these facts the higher court held the warehouse company liable for loss of the goods and said:

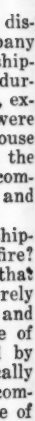
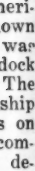
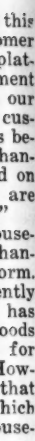
"In whose possession was the shipment of goods at the time of the fire? . . . It would be illogical to hold that the warehouse company was merely the agent of the railway company and therefore not liable for the value of the shipment of goods destroyed by fire while in its possession. Logically it follows that the warehouse company would be liable for the value of the shipment destroyed by fire."

Not responsible for rain-damaged goods if reasonable care taken to keep warehouse in repair at all times.

Another reader asked this question: "If stored goods are damaged by water which leaked through a warehouse building's roof, is the warehouseman liable for damage to the goods?"

(Please Turn to Page 96)

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(Continued from Page 22)

glimmer of hope. To the extent that we are prepared, and remain prepared, the worst is much less likely to happen.

"One of the dangers in the present situation is the recurring waves of undue optimism. We magnify facts which indicate a bettering of the situation and minimize the basic peril which confronts us.

"When it became necessary, after the Korean incident, for this country to embark upon a gigantic production program, it also became clear that there would need to be an expansion of storage facilities; both in private industry and in Government controlled space. The storage of strategic materials and the need for increased defense inventories play an important part in the requirements for such facilities.

"There are bound to be different needs in the various production areas due to these unusual circumstances. Furthermore, the changing international situation creates uncertainties as to the ultimate points of need for the stored commodities. This means that stor-

"In our approach to the storage problem, it is obvious that the two fundamental questions are, "How much warehousing space do we need?" and, "How much space do we have?"

"To answer the first question required an analysis of the requirements of the several government agencies that are substantial users of storage services, and a careful consideration of the needs of the essential civilian economy. Toward meeting the first objective, we have established the Interagency Storage Coordination Committee as a method of achieving effective coordination and utilization of the available facilities.

"This Committee is composed of representatives from the Defense Transport Administration, the Department of Defense, the Department of State,
(Please Turn to Page 66)

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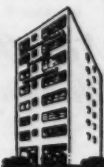
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1413 Healey Building
Phone- Alpine 1595

NEW YORK, N.Y.
J. C. Vandegriff
Representative
233 Broadway
Phone- REctor 2-3772

AWA Convention . . .

(Continued from Page 63)

ment of Agriculture, General Services Administration, and the Reconstruction Finance Corporation. It provides us with the opportunity of periodically reviewing the requirements of these agencies for storage services, and establishes a mechanism for determining the best method of overcoming deficiencies or, if necessary, establishing allocation procedures.

"Sometimes, by reason of lack of knowledge of the activities of other agencies, it appears that one procurement agency proceeds irrespective of the action being taken by agencies with similar requirements. In coordinating these various requirements and being able to consider at one time the over-all need for storage services, much good can be, and is being, accomplished.

"Of course, the needs of the essential civilian economy on a nationwide basis must be judged by historical trends, production figures, business indices, and other

statistical data as, unfortunately, there is no way of arithmetically determining such requirements.

"We do want to assure you that we are mindful of the needs of the public for warehouse space and that such requirements will be included in the over-all picture.

"The second problem, that of attempting to determine how much space we have, presented more difficulties than we first believed; particularly as it respects the merchandise group.

"The last survey of the industry was made in 1941, by the Census Bureau, but it was recognized that there have been many changes since that time. Under the circumstances, the most practical method of determining the scope and nature of these changes was to conduct a new survey, requesting sufficient information from the warehouse industry to obtain a reasonably accurate appraisal.

"After clearance with your Association, representative members

of your industry, and the Bureau of the Budget, the survey forms were sent out. We know that questionnaires are annoying things and that there is always the tendency to put off replying; but generally speaking, the response was good. We are hopeful it will produce enlightening and practical results."

Cooke Calls for Unity

Outgoing General President J. Leo Cooke sounded the keynote of the Convention calling for unified action against existing unfair and discriminatory regulations.

"We were not invited," he cited, "to write, or at least assist in writing the interpretation, of the Capehart Amendment insofar as it affects the public warehousing industry.

"Gentlemen," he continued, "this would not be a concern to warehouse operators had there been a tailored regulation established for this, one of the most important industries in these United States, as have been written for other industries."

(Please Turn to Page 68)

and Firms are Arranged Alphabetically

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SAVANNAH

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Modern Concrete Warehouses. Collections promptly remitted.
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MERCHANDISE - HOUSEHOLD EFFECTS, Etc.

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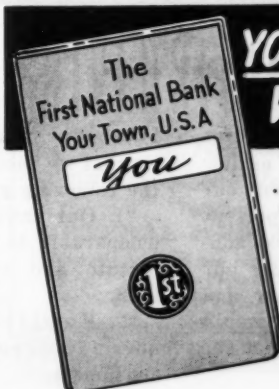
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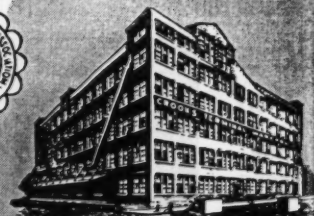
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Members of the American Warehousemen's Association and Interlake Terminals, Inc.

AWA Convention . . .

(Continued from Page 66)

Decrying the lack of collective collaboration, which he earlier pointed out was "50 per cent our fault" for the industry's present predicament, President Cooke added, "Had we been planning our legislative objective together, and not as individual groups, we would have better regulations written for our industry right now.

Objections to Title IV

"I registered our group's opposition recently, with the chairmen of the Senate and House Banking and Currency Committees, to the extension of the Defense Production Act of 1950, as amended; particularly with Title IV of the Act, which provides authority for the imposition of price and wage control.

"In other words, if we must have a Defense Production Act, don't retain Title IV of the Price and Wage Controls. However, if Title

IV must be retained, I was emphatic that we should be exempt upon the following grounds:

"1. Our industry is a service comparable to others exempt by statute and regulations of the OPS.

"2. Public Commercial Warehousing does not deal directly with consumers.

"3. Commercial Warehousing costs have a slight effect, if any, upon the cost of living.

"4. The price of rentals paid for the acquisition or operation of Private Warehouse facilities are not controlled.

"5. Price controls are not necessary in our industry. A buyer's market and strong competition serve to keep prices low.

"While our opposition to Title IV has been acknowledged, our influence is doubtful."

Here, Cooke reiterated the theme of his talk. "Gentlemen, it is only

with 'Togetherness' that we can expect to be influential in legislation, and be seriously listened to by those with whom we deal in Washington who interpret the laws under which we must operate.

Standard Contract Terms

"I know of another omission on our part in not advancing the welfare of the Warehousing Industry. And I refer you to the Standard Contract Terms and Conditions, which were adopted by representatives of shippers, bankers, railway men, and warehousemen at a general conference on April 30, 1926."

Without going into particulars about this well-known problem, Cooke asserted, "Authoritative legal advice has pointed out to me the grave importance of amending this document.

"I am convinced beyond a question of doubt that the innumerable reported and unreported legal decisions have outmoded these contract terms and conditions for

(Please Turn to Page 70)

and-Firms are Arranged Alphabetically

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For Shippers' Convenience, States, Cities

AWA Convention ...

(Continued from Page 68)

our protection, and for our service to our customers, these 26-year old terms and conditions must be revised and brought up to date."

Meetings for the balance of the Convention were divided into two groups—Merchandise Division and NARW Division—except Thursday's joint luncheon session, which closed the Convention.

Panel discussions predominated at both group meetings. They were well attended and, from the degree of participation from the floor, they seemed popular and profitable.

Panel topics at the NARW meetings covered: Prices, Pay, Priorities; Science Clinic; Refrigerated Storage of Candy; Control of Humidity in Storage Rooms and Condensation on Commodities; New Commodities for Refrigerated Storage; Customer Services Workshop; Insurance and Safety; Construction and Modernization; Materials Handling in Multi-Story Plants; The Military Contract; Human Side of Warehousing; Your Banker and You.

The merchandising group's panels were planned along similar lines. Many panels included slides and moving pictures as part of the discussions.

Special Problems

Many of the special problems confronting the warehousing industry received special attention by featured talks presented either by qualified experts or committee reports.

H. K. Osgood, Director, Warehousing and Storage Division, Defense Transport Administration, covered the subject of "The Public Warehousing Industry in the Defense Effort." He outlined the progress made in military warehousing as applied to the use of commercial warehouse facilities, and answered many questions relating to conditions and procedures.

A problem of perennial interest—financing—was very ably covered by C. J. LaMothe, Chairman, Committee on Banking Relations. This was one of a number of such reports presented throughout the convention, and exemplified the hard work and thorough coverage of the particular subjects for the past 15 months.

The subject "The Uniform Commercial Code" drew considerable attendance and interest. Committee Chairman C. O. Butler distributed an outline, which not only served as an excellent guide but, also, insured coverage of all points of interest and reduced the need for the necessarily careful explanations such a highly technical topic normally would entail.

(Resume Reading on Page 23)

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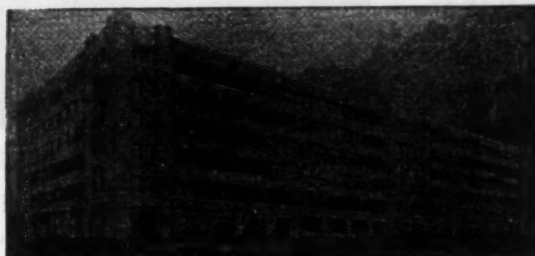
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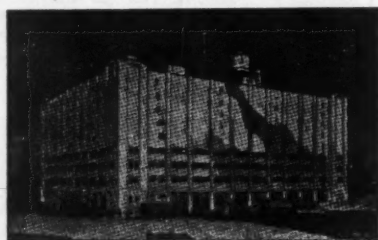


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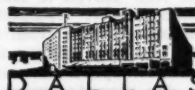
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and Firms are Arranged Alphabetically

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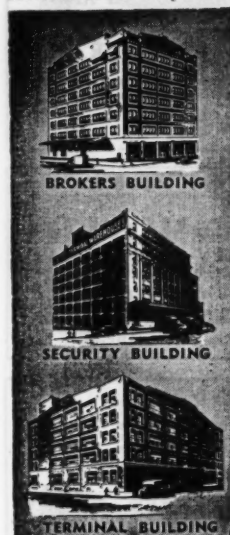
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... Dry-Bulk Handling

(Continued from Page 40)

ground belt transportation to be an excellent solution to mass moving problems, has become one of the major users of belt conveyors.

SOLUTION: It is evident that a problem of this nature is not readily solved by discussion. However, many interesting ideas in connection with cost reduction were mentioned by the conferees. It was pointed out that longer belt conveyor centers tend to reduce cost by the elimination of transfer points resulting from a series of shorter conveyors. This means less machinery, less degradation of coal, and a reduction of dust. In addition, it reduces the use of costly water piping, sometimes running for miles for wetting down dust, and a reduction in power cable lengths. A recent U. S. installation illustrating the preferred use of longer conveyors was a two-mile-long coal conveyor made possible through a specially constructed belt conveyor.

Neoprene-coated steel-reinforced

belts, another recent development, may be a partial solution to stronger belting at a lower price. This material, with somewhat similar characteristics of rubber, is more fire resistant, withstanding up to 450 deg F at which point it chars.

Actually the belt conveyor problem resolves itself into two parts of which the first is the development of lower cost belting to be used for existing installations. Second, a long range basic study is required to review the complete situation for the purpose of simplification. Research work is currently underway by Bituminous Coal Research to help reduce conveying cost and thus lower coal production cost.

Grain Handling Industry

PROBLEM: Handling of malt and corn grits in a brewery after these products have been cleaned.

The materials are received by truck or rail, elevated 140 ft to top of brewery, and distributed to a

series of bins that are 140 ft deep and occupy an 80 x 80 ft floor space. Then the materials are drawn out from the bottoms of the bins, blended, put into other bins, then moved to the processing department.

Amount of malt to be handled is 3000 cu ft per hour, or 60 tons. The volume is the same for corn grits, but, being heavier, the weight of this material to be handled is 90 tons per hour.

These are the conditions to be taken into consideration in solving the handling problem satisfactorily: There must be a minimum of rubbing together of particles. No dust at transfer points. And air is to be drawn from the bins at least at the same rate that the bin is filled, so that no dust is forced out of the bins.

As in all food handling systems, sanitation is required and residues of materials in which insects can develop are to be avoided in handling equipment.

(Please Turn to Page 80)

DISTRIBUTION AGE

and Firms are Arranged Alphabetically

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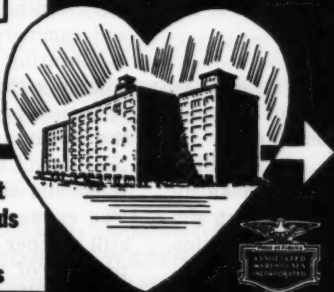
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... Dry-Bulk Handling

(Continued from Page 78)

In the past, these materials were raised to the top of the brewery by bucket elevators and distributed by screw conveyors.

SUGGESTED SOLUTIONS: The first answer proposed is the use of an air handling system, operating on the suction principle. This system would employ multiple car unloading hoses and a vacuum receiver on top of the silos. One riser pipe would handle both materials.

Air conveyors also were suggested for distributing the material to the bins, and it was pointed out that the majority of breweries already are using air conveyors successfully.

In drawing the materials from the bins and blending, the air handling system would use metering valves under the bins, or feeders with variable-speed drives could be used under each bin in the blending operation. This had not been done before in a brewery, but has

been done in other industries. As little as two per cent of a blend may be taken from one bin.

The pressure-type air handling method also was suggested as an answer to the problem. But the point was made that the suction system is more effective for unloading cars and trucks. The observation also was made that the suction of the air system would pull air from the bins at a rate somewhat faster than the bins are filled, creating a partial vacuum and solving the dust problem. This would be achieved with the aid of a rotating air lock with pockets which discharge into the hopper feeding the screw conveyors. Since the screw conveyor outlets are over the bins, dust from the bins is exhausted through them to the suction system. Therefore, no dust collectors would be needed.

Screw conveyors are means of distributing the materials to the bins. Although not as completely

self-cleaning, they are widely used and commercially satisfactory.

Vibrating conveyors were considered a third solution to the distribution problem, and these have the advantage of being sanitary. No "dead" material can collect in them and they are easily cleaned. The en masse type of conveyor is still another possible solution to the problem of elevating the materials and distributing them.

In this particular application gravity discharge of malt and grain from the air system to the silos was rejected for structural reasons.

One phase of this materials handling problem is the movement of corn grits horizontally to a point 600 ft from the elevator.

This can be handled by an air conveyor, also. One mid-western brewery has an 800 ft carry in its air handling system. Other conveying means could be employed, too, depending upon factors such as the number of obstructions to be bypassed. •

(Resume Reading on Page 42)

and Firms are Arranged Alphabetically

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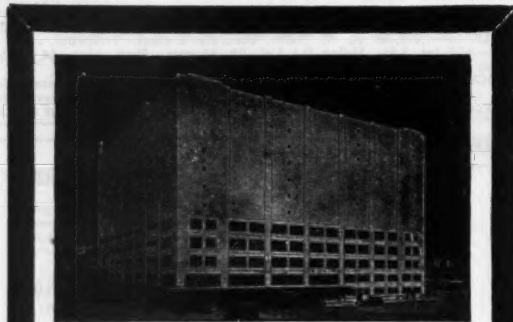
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... Efficiency Checklist

(Continued from Page 36)

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2. Are you kidding yourself about the usability of the building you now occupy? Are you being blinded by an advantageous rental rate or a bargain purchase price that is being more than offset by extra handling costs? Have you actually outgrown the building? Are you losing business because of an inaccessible, or traffic congested, location? Are you losing business because your shipping and receiving facilities are so inadequate that customers and transportation people dislike to come to your warehouse?

3. Would not a well-planned,

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4. Is your warehouse geared physically, mechanically and personnel-wise to give better service than your competitors?

5. Is there someone in top management who really gives the warehousing and materials handling problems the management guidance they deserve? Does someone "higher up" really feel responsible for achieving and maintaining maximum efficiency in this niche of the business?

6. Is your warehouse being loaded because proper attention has not been given to keeping in-

ventories down to practical minimums? Particularly, could the level of any of the larger, more space-consuming items be reduced?

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(Resume Reading on Page 38)

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FIREPROOF WAREHOUSES
Tulsa Oklahoma

MEN in the NEWS

(Continued from Page 13)

line sales staff in the San Antonio-Houston area.

Hubert A. Downing has become division manager of Robert Gair's Fort Niagara Corrugated Box Division, North Tonawanda, N. Y. Frank E. Newton has been named division manager at the Ohio Division, in Cleveland, and John D. Mullins is sales manager at the Boston Division, in Cambridge, Mass.

James W. Taylor has been placed in charge of bag sales for Kraft Bag Corp., a subsidiary of Gilman Paper Co., of Gilman, Vt., and St. Marys, Ga. B. T. Miller is now covering a southern section of the country for Kraft.

Thomas Virtue has been named superintendent of the Victory Mills plant of United Board and Carton Corp., Syracuse, N. Y.

Traffic

L. J. Hackl has been elected president of the Milwaukee Traffic Club, Milwaukee, Wis.

Paul H. Darges has been appointed traffic manager of Rust Engineering Co., Pittsburgh, Pa.

Owen R. Jones is new traffic manager in the General Electric Co. ma-

terials and purchasing service department, Schenectady, N. Y.

Recent appointments by the Ford Motor Co. include: James F. Howe, assistant director, general traffic office; George H. Russel, administrative assistant to the traffic director; James A. Byers, manager of the traffic control department; Gillman D. Mullreed, manager of the traffic analysis department.

H. B. Reaves, Jr., has been appointed assistant traffic manager by the Pittsburgh Plate Glass Co., Pittsburgh, Pa.

Transportation—Air

Clyde D. Doran has been named chief of United Air Lines Hawaiian sales office.

—Highway

Paul W. Heasley has been appointed vice president and comptroller and Lloyd R. Everhard has been named secretary-treasurer of Trailmobile, Inc., Cincinnati, Ohio.

Wyman L. Henry has been named manager of the Kansas City Branch of White Motor Co. Kenneth F. Ode is new manager of government contracts in the truck division.

Richard A. Lill has joined American

Trucking Associations, Inc., as a highway engineer.

Dock Foreman Lloyd Clark and Jack Maines have been transferred to new territories by Pacific Intermountain Express, Oakland, Cal., and Vern Clark has been promoted to dock foreman.

Howard L. Willett, Jr., is new president of the National Truck Leasing System, of Chicago.

—Rail

William F. Clemens has been appointed freight train master by the Long Island Railroad, New York.

Charles L. Franklin has been named assistant vice president of the Rock Island Lines, Chicago. Oscar W. Limestall was named general manager, and Ernest R. Foulks became general superintendent of transportation in Chicago.

OBITUARIES

Howard Marshutz, supervisor of waterproof sales for Bemis Bro. Bag Co., St. Louis, Mo., died March 10 of complications resulting from an automobile accident. He had been with Bemis since 1916 and supervisor of waterproof sales since 1943. He was 52.

Clinton H. Haskell, president of Beatrice Foods Co. for the past 24 years, died March 21 following a long illness. He was 63. A pioneer of the dairy industry, he had been associated with the Chicago firm for 46 years.

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Chuting the News

(Continued from Page 13)

Golden Anniversary

Willard Storage Battery Co., Cleveland, Ohio, recently marked its 50th anniversary with a Golden Jubilee Issue of the "Willard Salesmaker." The Willard Co. has turned out more than 100 million batteries since its inception in 1902.

Improved cargo carryings and higher freight rates largely accounted for an increase in net profit of United States Lines Co. in 1951. In the first quarter this year net income also rose sharply.

Expansion Decline Hinted

Spending on new plants and equipment, one of the big props under today's business, and now at a record high, appears to be heading for a decline. A Commerce Department survey shows a mild tapering off in such spending, and some experts predict a 10 to 20 per cent decline for 1953.

Invitations have been mailed to 4000 members of the moving industry to attend the 1952 Assembly of the Movers' Conference in Chicago, Aug. 3-5.

Fight Freight Loss

As a means of further intensifying efforts to reduce loss and damage to freight, the organization of a Freight Loss and Damage Prevention Section has been authorized by directors of the Association of American Railroads.

Industrial production in April declined 1 percent, with half the drop attributed to steel mill shutdowns.

Airlines Turned Down

Two non-scheduled airlines, Seaboard & Western and Transocean, which operate a non-scheduled service between the U. S. and Middle East points, have been turned down by C.A.B. in their bid to go on schedule.

Price Chief Arnall has asked Congress to revise the Capehart amendment to the control law so that it would clearly not apply to wholesalers and retailers.

(Resume Reading on Page 15)

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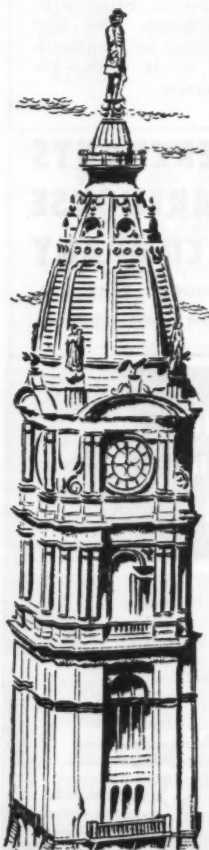
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(Continued from Page 15)

Trucking Terminals

Pressure has been brought to bear on control agencies in an effort to obtain more liberal treatment with respect to tax amortization certificates for expanding motor truck terminals. An American Trucking Association survey shows that plans are ready for the trucking industry to sink \$50,000,000 into 3,300,000 sq ft of new terminal floor space. This includes expansion of 127 existing terminals and building some 287 new ones. Fast tax write-off privileges are wanted to help ease the carrying cost should the increase in civilian freight volume not show up as quickly as expected.

Storage Practices

The new trade practice rules for the refrigerated storage trade, affecting some 700 warehouses, are now ready after their revision by the Federal Trade Commission for the first time since 1931. They were announced on April 4, intended to become effective in early May. Prohibited as unfair trade practices were deceptive and misleading advertising, issuance of warehouse receipts without actual control of the goods, commercial bribery (such as use of money, gifts, or unusual concessions to representatives or agents of competitors), and, of course, price-fixing conspiracies.

Shifting Pattern

Shipping advisory boards now confirm the swing or conversion to defense production has not meant less work for distribution industries, only a shift in pattern—as forecast last year by DISTRIBUTION AGE. Increased shipping by highway transport continues. And while there will be no increase in rail transport during the second quarter, advisory boards say any freight loss in peacetime goods will more than be made up by defense production, machinery, etc. Automobiles and parts shipping will decrease for a period but there is a big jump in items such as frozen foods, ores, etc.

Capital Trends

Shortages of tackle blocks have caused some talk of the Navy underwriting the cost of conversion of one or more metal-working plants. The Navy is buying \$3,000,000 worth this year and will need the same amount next year.

. . . For the next two years, the deliveries to the military services will run about \$9 worth of hard goods to \$1 worth of soft goods.

. . . Shipments of critical metals, minerals and ores from abroad are due to start picking up shortly. More than 80 different development projects are under way with a \$200,000,000 advance by this country.

. . . Rate of highway improvement and development will depend upon federal and state appropriations. Materials will again be in plentiful supply before end of the year.

. . . Biggest increase in military shipments will be in ordnance and accessories including shells and explosives. Employment in these industries more than doubled last year.

. . . All land and maritime shipments to Mexico valued at more than \$115 (1000 pesos) must carry four invoices stamped by a Mexican consul in this country.

(Resume Reading on Page 19)

and Firms are Arranged Alphabetically

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Within the Law (Continued from Page 60)

The answer is no, the warehouseman is not liable if the testimony shows that the warehouseman used reasonable care to keep the roof in good condition. This is so because a warehouseman is not liable for damage to stored merchandise, unless the evidence indicates conclusively that such loss was occasioned by lack of ordinary care on the part of the warehouseman, or his employees.

For instance, in *Kline v. Sinton Transfer Co.*, 247 N. W. 215, it was disclosed that the owner of household furniture stored the same in a warehouse situated on the first floor. The second floor of the building was occupied by another tenant.

Sometime afterward it was discovered that water had leaked down from the second floor onto the furniture and household goods. The evidence of the warehouseman was that on discovering their condition he removed the furniture and goods to another building where they were wiped off and spread out to dry.

The owner of the goods filed suit against the warehouseman to recover a judgment for the alleged damage to the goods. However, since it was proved that the leak resulted from negligence on the part of the tenant who occupied the second floor of the building, and that the warehouseman had no knowledge that a leak might occur, although the lower court held

the warehouseman liable the higher court reversed the verdict, and said:

"A warehouseman shall be liable for any loss or injury to the goods caused by his failure to exercise such care in regard to them as a reasonably careful owner of similar goods would exercise, but he shall not be liable, in the absence of an agreement to the contrary, for any loss or injury to the goods which could not have been avoided by the exercise of such care."

Husband v. Wife: Cases of notification of spouse and failure to pay for storage.

A few days ago a reader wrote an interesting letter in part as follows: "At present we are carrying an account in a husband's name, although we issued our warehouse receipt in the wife's name. Can we sell the goods for overdue storage charges by notifying the husband who is separated from his wife who left for parts unknown?"

According to a late higher court decision, the answer is no.

The higher courts consistently hold that a warehouseman always is liable for conversion if he sells stored goods without sending the true owner of such goods a notification which conforms with statutory requirements, or if he fails to advertise the intended sale of the goods in strict accordance with the law.

For illustration, in *State v. Terry* 135 S. W. (2d) 363, it was shown household furniture belonged to Mrs. Terry. She made arrangements with a warehouseman to store the goods. Mrs. Terry left the city in which the warehouse is located, but Mr. Terry remained in the city. On several occasions Mr. Terry paid the charges, but finally he left the city and subsequently the warehouseman decided to sell the goods to recover overdue storage charges. After advertising the intended sale and sending Mr. Terry a usual notification to his last known address, the warehouseman sold the goods.

When Mrs. Terry learned that her goods had been sold she filed suit against the warehouseman to recover the value of the goods, on contention that the warehouseman was liable for conversion.

In view of this testimony the higher court held the warehouseman liable for conversion, and said:

"Here Mr. Terry was neither the owner of the goods, nor was he the person on which 'account' the goods were held within the meaning of the statute. It is true that Ace Storage Company had elected for its own purposes and conveniences to carry the particular storage account on its books in the name of Mr. Terry, rather than in the name of the plaintiff (Mrs. Terry) whom it knew to be the owner of the goods and to whom it had issued and transmitted its warehouse receipt therefor, but it could hardly be suggested . . . that the warehouseman

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might be permitted to evade his duty to notify the real person in interest ... The fact remains that if she (Mrs. Terry) had been given due notice by defendant (warehouseman) she would have had an opportunity to protect herself against the consequences of her husband's failure to have kept the storage charges paid."

TRANSPORTATION

The final custodian is liable for loss of goods, pilferage, or damaged goods.

Recently a reader wrote, as follows: "Our company received a shipment of import merchandise by water for distribution. The shipment included a number of orders, some for local delivery and some for reshipment. One of the local orders was later found to be short part of the merchandise. The shortage could not be ordinarily detected without unpacking, as the bale showed no outward visible sign of pilferage. We took no exception at the dock and the dealer who received the order also receipted to us without exception. He later filed claim for the shortage and the importer, in turn, entered claim with the steamship company who rejected it on the ground that they held a clear receipt from us, and that pilferage could have occurred while goods were in our possession. What is our legal liability? —Willis Transfer Co."

According to a late higher court decision, the final custodian is solely liable for the loss.

The latest case on this subject is *Klugman v. Oceanic Steam Navigation Co.*, 42 F. (2d) 461. In this case a shipper sued a common carrier, a truckman and a warehouseman for the value of merchandise. The shipper proved that the merchandise was stolen from the crate either while the

shipment was in transit or while it was in the warehouse.

Prior to the discovery of the shortage, the shipment had been in the custody successively of the common carrier, a truckman and a warehouseman.

The box had been covered stoutly with canvas prior to shipment, and careful scrutiny revealed that the canvas on the bottom had been cut and neatly restitched. The reasonable inference is that the thief extracted the merchandise by cutting the canvas and removing the bottom boards.

In holding the warehouseman solely liable, the court said:

"In my opinion, no case has been established against either the truckman or the carrier, the two defendants which resisted liability. . . . The final custodian who has received the goods in apparent good order, without noting any defect, should not complain if an unexplained loss is attributed to him rather than to prior custodians; in many cases a careful inspection by him at the time the goods were turned over to him would have revealed the defect, if any then existed, and would have saved him from liability."

Is transfer company liable for loss of goods it failed to pick up on schedule?

Another reader asked this important question: "Our transfer company neglected to pick up a shipment for a common carrier at a warehouse. The warehouse burned and the goods were destroyed. Is our transfer company liable for the loss?"

A leading higher court held that an agent is personally liable for damages resulting from his negligent failure to properly perform the act causing the injury. However, he is not liable for damages resulting from his failure to do something he should

have done. Hence, your transfer company is not liable.

For instance, in *Galveston Wharf Co. v. American Co.*, 13 S. W. (2d) 983, it was disclosed that a shipper of canned sardines delivered to a steamship company 1,125 cases of the sardines for which a through bill of lading was issued, shipper's order, notify the consignee. The sardines were transported to a warehouse owned by a warehouse company with which the steamship company had arranged to transport the sardines to the connecting railway. The warehouse company negligently failed to transport the shipment to the railway company on the day it should have been delivered. The following day the warehouse burned without fault of the warehouse company and the sardines were destroyed.

The consignee sued the warehouseman for damages, but since the warehouse company was the agent of the steamship company and its neglect consisted merely of an act of omission, and not one actually causing the damage, the court held the warehouse company not liable, saying:

"Our courts have uniformly held that terminal companies, belt line companies, and railroad companies performing a transfer, shifting, or switching service are acting in the capacity as the transfer agent of the company for which the service is performed, and not in the capacity of a carrier or railroad company. . . . If the warehouseman was serving in the capacity of transfer agent of the railway company . . . it follows that the delivery of the shipment to the warehouseman was delivery to the railway company. . . . The rule is that an agent is personally liable to third persons for doing something which he ought to have done, but not for not doing something which he ought to have done. . . . The steamship com-

(Please Turn Page)

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Within the Law

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pany had delivered the shipment to the warehouseman, and the warehouseman should have picked up the shipment of sardines and put them in the waiting cars of the railway company and failed to do so, such failure was an act of omission, and not of commission of a positive wrongful act and, under the rule the warehouseman would not be liable to the shipper."

Common carrier cannot extend time for filing suit beyond limitation of bill of lading.

A few days ago a reader wrote, as follows: "Our corporation is a common carrier. Can we extend the time specified in a bill of lading that we must sue a shipper or consignee, or the latter must sue us?"

The higher courts have held that the outstanding purpose of the Commerce Act is to destroy all discriminations in interstate commerce regardless of how conceived or by what plan, scheme or device they may be sought to be accomplished. Hence, a common carrier cannot by conversations, letters or negotiations extend the time for filing a suit beyond that limited by the bill of lading, or the Commerce Act.

For illustration, in *Kirkpat Co. v. I. C. Company*, 195 So. 692, it was disclosed that a common carrier issued to a shipper a bill of lading containing a clause, as follows:

"As a condition precedent to recovery, claims must be filed in writing with the receiving or delivering carrier, or carrier issuing this bill of lading, or carrier on whose line the loss, damage, injury, or delay occurred, within nine months after delivery of the property; and suits shall be instituted against any carrier only within two years and one day from the day when notice in writing is given by the carrier to the claimant that the carrier has disallowed the claim or any part or parts thereof specified in the notice."

A shipper failed to file his suit against a carrier within the specified two years and one day period, but testified that after giving the carrier legal notice of its failure to deliver the shipment certain negotiations took place which implied that the carrier waived its right to plead that the shipper had failed to comply with the law requiring that the suit should have been filed within two years and one day. However, the higher court held that the shipper had forfeited the right to sue the carrier, and said:

"The parties could not waive the terms of the contract under which the shipment was made pursuant to the Federal act; nor could the carrier by its conduct give the shipper the right to ignore these terms which were applicable to that conduct, and hold the carrier to a different responsibility from that fixed by the agreement made under the published tariffs and regulations."